

THE SPAS  
OF  
AIX-LES-BAINS  
AND MARLIOZ

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*F. BERTIER*



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THE SPAS  
OF  
AIX-LES-BAINS AND MARLIOZ,  
SAVOY

*By the same Author*

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DES EAUX MINÉRALES DE LA SAVOIE

PARIS, 1873







AIX (from the South.)



# THE SPAS

OF

## AIX-LES-BAINS AND MARLIOZ, SAVOY:

THEIR PHYSIOLOGICAL ACTION, MODES OF APPLICATION,  
CLINICAL EFFECTS, AND ANALYSIS;

TOGETHER WITH

PRACTICAL INSTRUCTIONS.

BY

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## P R E F A C E

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I TRUST that this little work will prove useful to the physician, as demonstrating the curative properties of the waters of Aix, and be somewhat of a guide to intending visitors to the thermal springs of Aix-les-Bains and Marlioz.

I have to acknowledge valuable aid from the experience and suggestions of my father, Dr L. Bertier, Physician and Assistant-Inspector to the Bathing Establishment for the last thirty-five years.

I also avail myself of this opportunity to thank the Physicians and Surgeons of the Hospitals of London and Dublin for their kindness and courtesy to me during my sojourn amongst them, and for the great benefit derived from their lectures and clinics.

Lastly, my sincere acknowledgments are due to my confrère, "Quatorze," for the faithful translation of this work.

FRANCIS BERTIER.



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## ERRATA.

- Page xiv, line 21, and xv, line 3, for *Montiers* read *Moutiers*.  
 „ 5, last line, for *docal* read *local*.  
 „ 16, line 3, for *Ecossair* read *Ecossaise*.  
 „ 21, „ 12, „ *Fahr.* read *Cent*.  
 „ 37, „ 9, „ *Guillard* read *Guilland*.  
 „ 38, „ 6, „ *Guillaud* read *Guilland*.  
 „ 92, lines 13 and 26, for *Janus* read *James*.  
 „ 143, line 1, for *Gigat* read *Gigot*.  
 „ 143, „ 22, „ *Monxy* read *Mouxxy*.  
 „ 145, „ 16, „ *Lemuoz* read *Semnoz*.  
 „ 149, „ 18, „ *Loth* read *Lot*.  
 „ 151, „ 5, „ *Tsère* read *Isère*.  
 „ 155, „ 13, „ *credit* read *crédit*.



## INTRODUCTION

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SOME years ago I sketched in a short pamphlet the medical history of the principal mineral springs of Savoy ('Des Eaux Minérales de la Savoie,' Paris), but this brochure, scarcely sufficing for some of our watering places of secondary importance, was especially inadequate as regards Aix, of which it only gave the medical aspect. Since that date five years have elapsed, during which time I have been enabled to collect many facts and to group together numerous observations. These form the basis of this new work. I regret having to omit many particulars which have their importance, but the limits to which I wish to confine myself do not admit of extended details. I do not aspire to write a complete dissertation, but a practical work, which may aid the physician as a summary and handbook in the study of the therapeutic indications of our Sulphur Springs. To give more weight, and, if I may venture to express

myself so, more ingenuousness to the clinical part of my work, I have quoted the names of, and when necessary, the letters of introduction from the physicians who have sent me patients, regarding whom I have published observations.

In the first place, I purpose studying the physiology of the waters of Aix and of Marlioz, then enlarging upon their curative virtues, and, lastly, concluding with some general, practical, non-medical remarks, intended for bathers who come for the first time to Aix-les-Bains. But before discussing these questions, with the details which form my plan, I will give an abridged summary of the hydropathic wealth of Savoy in a rapid enumeration of its principal mineral springs.

First, by reason of their vicinity, we have the Eau de Challes, the most mineralised of the sulphur springs. They contain twenty times more sulphur than the richest Eaux des Pyrénées, and a considerable proportion of iodine. (See analysis.)

Next, there are the Eaux de Montiers, the only strongly chlorinated and thermal waters of France; and then the purgative and tonic waters of Brides, distant scarcely two miles the one from the other. Nature appears to have placed them by design in this proximity, to present, by their union, the



clements of a complete medication. Professor Gubler thus expresses himself respecting the waters of Montiers in his first course of lectures, when he passes in review the different waters, strongly or highly chlorinated, sodic, and thermal. "There is yet another mineral water almost unknown to the physicians of Paris, and notwithstanding, well worthy of attention, namely, the waters of Montiers (Savoy), which contain 17·16 grammes of salts in 1000 grammes; that is to say, the mineralization of the principal spring of Nauheim, the Kurbrunnen, with a temperature much higher, 38° C. (100·4° Fahr.), and such an abundance of water that one can bathe in the running stream." Let us add, that the position of Montiers, situate at an altitude somewhat considerable, though in the region of the vine, offers exceptionably favorable conditions to the ordinary patrons of chlorinated sodic waters.

There are again the Eaux de St Gervais, rightly preferred in the treatment of the diathese dartreuse (ringworm, &c.), by two well-known physicians, Alibert and Dr Hardy: the Eaux de la Caille, running beneath the celebrated bridge of that name, on which is a well regulated establishment: the ferruginous waters of Bauche, and the springs of Evian, picturesquely situate upon the shores of

Lake Léman, and so beneficial in many complicated affections.

From this rapid enumeration, it must be allowed that the mineral hydrology of Savoy is one of the most complete and most interesting that can be discussed.

I should be justified by the occasion which offers itself so naturally to my pen, to dedicate some lines to this country, the cradle of the House of Savoy; to celebrate its enchanting lakes, which inspired Lamartine; to describe its rugged or coquettish mountains; to dilate on the mildness of its climate, the infinite variety of its landscapes, and the excursions so prized by the tourist. I must not, however, enter into all these particulars, but proceed without further preamble to the medical study of the waters of Aix.

# THE SPAS

OF

## AIX-LES-BAINS AND MARLIOZ

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### CHAPTER I

#### PHYSIOLOGICAL ACTION

#### *Description and Analysis of the Waters of Aix-les-Bains*

OF all the Sulphurous Spas of the Continent, Aix is unquestionably *the* most important. The world-wide reputation of its thermal establishment is easily accounted for: in the first place, by the abundance of the natural hot water,—the supply amounting to a million gallons daily, at a temperature of 112° to 114° Fahr.; secondly, by the well-known attention and skilfulness of the shampooers; thirdly, by its proximity to Marlioz and Challes,

which, as containing the two strongest sulphur springs on the Continent, are most useful auxiliaries in the mineral water-cure. These three springs act together in complete medical harmony, and, notwithstanding their different properties, present many conditions admitting the happiest combinations in medical treatment, and answering all the requirements and indications of sulphurous therapeutics.

“The climate of Aix,” says Dr Garrod, in his ‘Treatise on Gout and Rheumatic Gout’ (3rd edition, London, 1876), “is Italian, and for English patients the best time for undergoing the course is during the months of May and June, or the month of September. The douche forms a very important speciality in the treatment at Aix, and this is combined with the influence of the hot vapour from the waters, together with ordinary bathing in, and drinking of the Aix water. When a large amount of sulphur is desirable in the form of the sulphide of sodium the water of Marlioz, situate about a mile from Aix, or the Challes water, from near Chambéry, which contains, not only a very large amount of sulphur, but also iodides and bromides, is employed internally in the treatment.”

Two sources supply the thermal establishment at

Aix, the one called the Eau d'Alun, the other denominated the Eau de Soufre. These waters differ only as regards their points of egress; they are nearly identical under the double relation of mineralisation and temperature, the latter at the two fountains being from  $45^{\circ}$  to  $46^{\circ}$  C. ( $113^{\circ}$  to  $114^{\circ}$  F.). As to the mineralisation or chemical composition of the waters of Aix, we quote the result of the experiments of M. Joseph Bonjean, a pharmacist of Chambéry, who devoted much time and labour to their analysis.

*Analysis of the Sulphur Spring at Aix-les-Bains*

TEMPERATURE  $113^{\circ}$  FAHR.

In 1000 grains of water there are contained :

Nitrogen	.	.	.	.	0.03204 gr.
Free carbonic acid	.	.	.	.	0.02578 „
Free sulphuretted hydrogen	.	.	.	.	0.04140 „
Silex	.	.	.	.	0.00500 „
Phosphate of alumina	.	.	.	}	0.00249 „
„ of lime	.	.	.		
Fluoride of calcium	.	.	.		
Carbonate of lime	.	.	.	.	0.14850 „
„ of magnesia	.	.	.	.	0.02587 „
„ of iron	.	.	.	.	0.00886 „
„ of strontia	.	.	.	.	traces
Sulphate of soda	.	.	.	.	0.09602 „
„ of lime	.	.	.	.	0.01600 „

Sulphate of magnesia	.	.	.	0·03527 gr.
„ of alumina	.	.	.	0·05480 „
„ of iron	.	.	.	traces
Chloride of sodium	.	.	.	0 00792 „
„ of magnesium	.	.	.	0·01721 „
Alkaline iodides	.	.	.	traces
Glairine	.	.	.	indeterminate quantity
Loss	.	.	.	0·01200 gr.
Total in 1000 grains				0·43000 gr.

The analysis of the waters of Alun is practically identical ; it is therefore not given.

Subsequently MM. Ossian, Henry fils, and Bonjean, made some experiments together upon these waters at the Chemical Laboratory of the Faculty of Paris, and found in ten litres of the water :

Source de Soufre	{	Iodine	0·000486 gr.
		Bromine	0·000218 „
Source d'Alun	{	Iodine	0·003782 „
		Bromine	traces.

This analysis is very old, and accordingly, must be received with caution on account of the very incomplete means of investigation then employed. It might be as well if the Government would direct a new analysis to be made as soon as possible.

The springs of Aix are specially remarkable for the large proportion of sulphuretted hydrogen which



they emit. Despite this abundance of sulphur gas they only indicate four degrees by the sulphydrometer. M. Durand-Fardel says, "Fontan remarks that the waters of Aix are slightly sulphuretted. It would be, perhaps, more correct to say that they very quickly lose their sulphur principle. They also deposit much sulphur and a quantity of sulphuric acid, which proceeds to organise itself in forming sulphates upon the walls, the iron-work, the timber it encounters, reddening the materials" ('*Traité Thérapeutique des eaux Minérales de France et de l'Étranger*,' par Durand-Fardel, 1857).

The limit of this work does not allow me to give a detailed description of the different balneo-therapeutic means employed at the establishment at Aix. The abundance of the water admits of an almost endless variety. I would, however, mention the following :

25 spacious rooms for the douche.

32 private bath-rooms.

4 large swimming baths called "piscines."

2 old swimming baths.

2 rooms for the "douche en cercle" and "de siège."

3 rooms for inhalation and spray douche.

3 local douches.

6 rooms for general and local vapour baths.

2 douches called "enfer," &c. &c.

The out-pour of these two springs, as before mentioned, is a million gallons a day, and that of the night being stored up in large reservoirs,—arranged so as to maintain the original heat of the water,  $46^{\circ}$  C. ( $114\cdot8^{\circ}$  Fahr.),—supply each day, and almost exclusively in the morning, more than 1200 baths, 2000 douches, and 200 inhalations, say in all 3400 major applications, without naming accessory ones.

## CHAPTER II

### MODES OF APPLICATION

*Character of the Thermal System.—Thermal, Vapour, and Douche Baths.—Stimulating Effects*

It is easy to reduce the various medications, stimulating, revulsive, alterative, tonic, and sedative, of which the numerous medical writings treat concerning the waters of Aix, to two general types. They are :

1. The stimulant or exciting medication ; and
2. The sedative, or soothing and tonic medication.

I shall consequently study in the waters of Aix the two effects which answer to this double medication.

Let me say, at once, that the first demands much prudence and judgment in its employment. Dr Bertier, my father, thus expressed himself on this point, in a pamphlet published in 1853, “ Whence comes this danger? It is the result of the misuse, too often

made, of the douche, in indulging in it imprudently, and without submitting to the instruction of a physician, a proceeding always necessary. In acting in this manner the bather exposes himself to the consequent ill-effects, for the douche and the vapour bath give an enormous force and activity to the waters. In this form of application is centred the exceptional merit of the waters of Aix; it is to it that they owe their ancient reputation. The douche and the bains de vapeur every year effect many marvellous cures" ('Remarques sur l'Action des eaux d'Aix dans la Phthisie Pulmonaire').

I would state here, so as not to revert to it, that the results of stimulation are not due to the intrinsic action of the waters of Aix, since their mineralisation consists especially in a hyposthenic gas—sulphuretted hydrogen. In fact, this is the opinion put forth on the subject by M. Durand-Fardel in his 'Traité de Thérapeutique des eaux Minérales de France et de l'Étranger' (p. 99). "This thermal station (Aix) is of great importance, less perhaps for the intrinsic quality of its waters as for their great abundance, their temperature, from which excellent advantage can be derived, and the extreme perfection of their management and their methods of administration. Such, indeed, is the

attention given to that part of the treatment, which includes the douches, the vapour bath, the shampooing, &c., that the chemical or medicamentous qualities of the mineral water seem to vanish in great part before means of action of quite a different order.”

Three causes concur to produce stimulating effects in a mineral water. They are :

1. Dynamization, apparent or latent, which includes heat and electricity.
2. Mechanical action.
3. Chemical combination.

1. The investigations of M. Scoutteten, of Metz, prove, in an unobjectionable manner, that electricity plays an important rôle in mineral waters. But though recognising the existence of this action, we cannot, seeing the actual state of our knowledge, assign to it, in a positive manner, the part which it takes in the production of physiological phenomena yet unexplained. But it matters little whether it be to electricity or to other causes, which have hitherto escaped all means of investigation, that they owe part of their peculiar properties ; the unquestionable fact still remains, that waters artificially heated never bring about the same physiological and therapeutic result as springs with natural colorifica-

tion. Thermality is the true cause of the stimulation, or, at least, the most efficacious cause. It suffices even to explain the success of indifferent waters, such as Chaudes, Aigues, Nérès, and Plombières.

Hydrotherapeia, that is to say, the application of cold, can produce some of the effects of stimulation corresponding with those obtained by thermality, but it can only be exceptionally employed by a person affected with rheumatism in whom reactions are generally difficult.

I honour myself in sharing here again the opinion of Professor Gubler, when he affirms that those waters are not the most mineralised which best exhibit this stimulating action, but those which are at the same time the most thermal, the most abundant, and the best administered. According to him, although Barèges and Luchon are in this category, they are much inferior to Aix, where one has a vaporium of  $40^{\circ}$  to  $45^{\circ}$  C. ( $104^{\circ}$  to  $112^{\circ}$  Fahr.), and so large a quantity of water that the different bathing operations can be varied to any extent. I conclude my observations on thermality by quoting here the remarks of MM. Trousseau and Reveil. "The thermality of the waters plays a rôle important as therapeutic, whether its action be considered



as isolated, or as combined with the other elements of mineralization. It plays also a rôle in the composition of the medicament which the waters constitute. Though it might be casier for us to artificially impart to a mineral water the degrees of temperature it has lost, than to imitate its chemical composition, this artificial thermality would not correspond to the natural thermality. Not that these would be different, the one from the other—such an idea would be contrary to the most elementary notions of physics—but because, in becoming cold, waters, naturally warm, alter themselves in some way. By this fact alone, a portion of the chemical elements, held in solution by reason of a certain degrec of temperature, prccipitates itself, the chemical combinations are modified, and in re-heating them we could not restore them to their primitive state.” (*Traité de l’Art de Formuler*, Paris, 1859).

2. Under the section of mechanical action, it is necessary to understand the different processes which are employed with so much success at Aix, such as the shampooing, la percussion de l’eau; in a word, the douche with all its varieties. Sir Dominic Corrigan has thus described them in some notes respecting Aix, written after a residence there,

from which he derived the happiest results. "At eight o'clock (I rose at seven o'clock) there was at the door of my bedroom one of those sedan-chairs already described. A double blauket provided by the hotel, and white as suow, was spread upon the seat and upon the foot-board, which was so constructed as to be lengthened or shortened, according as required for the feet. In this I was folded up half dressed, the curtains drawn, and the journey commenced. It did not occupy more than six or eight minutes to reach the establishment. A door, half-glass, was then opened, and I found myself in the douche-room, about six or eight feet square and twelve high, with an arched brick roof, large and airy, with a floor in which there was kept constantly a depth of three or four inches of hot water, circling about from two pipes of about one inch and a half diameter, the superfluous water running off through a discharge opening. In this douche two able-bodied attendants—and indeed they required to be so from their unceasing labours—took me by the hands, and placed me sitting on a wooden stool, with a smaller and lower stool for my feet. They immediately commenced operations. One stood in front of me, the other behind me; and while each directed a tube, in full force, of hot water upon back, shoul-

ders, arms, and legs, each attendant laboured strenuously in shampooing back, shoulders, arms and legs. This process lasted about fifteen minutes, the two tubes discharging their contents with the force of a fire-engine; and as each discharging tube obtained its supply from two united tubes—one with very hot water, the other with cold—the temperature was raised instantaneously, to please the bather's feelings, by a tap on each stop regulating the supply, the guide to temperature being a question from either of the shampooers if it was "bon!" This process being at length completed, I stood up, and was assisted, if necessary, by one of the attendants, to a round iron bar secured in the wall at each end (but separated from it by a small space), on which I rested my hands, with my face to the wall, much in the same position in which I might suppose a garotter to be placed for his flogging. While this was being done the second attendant fitted, on the open end of one of the discharge tubes, a 'rose,' like that of a garden watering-pot. He then laid on a stronger and hotter force of water, and made it play over back of neck to heels, now here, now there, now everywhere, until one felt as if this needle-bath were flaying one, and yet the sensation was not of pain, but of pleasure verging on pain.

This did not continue more than two minutes, I think, but the time seemed much longer, when a bell rang, one blow, and then the 'maillot,' or swaddling clothes, arrived.

"The glass door into the bath-room was opened, and there appeared in the doorway the sedan, or 'chaise à porteurs,' with its curtains drawn back, its foot slide drawn out, and a doubled white sheet spread out to sit on, and reaching as high as my shoulders, with ample folds to envelope the feet. While one of the douecheurs still continued the necessary discharge of hot water on the legs, the other applied a hot napkin over the neck and chest, and then, having hastily dried me, and tied over my head and knotted under the jaws another napkin, folded crosswise, in the style of one of our countrywomen carrying a basket of eggs to a country fair, I sat down in the sedan and was quickly enveloped in a hot sheet, over which a thick warm blanket was folded; the curtains being drawn close the bearers set out, and in a very short space of time deposited me at the bedside in my hotel. Here, without disturbing any of the wrappings, the two carriers—'porteurs'—lifted me by the legs and shoulders, and quickly dropped me into bed, and drew the bedclothes over me. The hot packing

was delicious, and for twenty minutes I enjoyed a most refreshing sleep, or composure of brain. At the end of that time my 'garçon,' who had accompanied me with the blankets from the hotel, entered, bearing on his arm a pannier. This is an open basketwork, like a child's go-cart of wickerwork; it is about four feet high, of equal diameter throughout, and divided across the centre by an open wickerwork partition. In the upper portion were some napkins and my nightdress, which rested on the sides and open work partition, while in the lower portion hung, suspended by a cord from the screen above, an iron brazier containing red-hot wood ashes. This arrangement heats napkins and nightdress to a most comfortable temperature, and at the same time protects them from being scorched, or burnt by the live ashes. The 'garçon' proceeded quickly to divest me of the 'maillot,' or swaddling clothes, to put on my hot nightdress, to lay over my chest in front and on my shoulders, on each respectively, a very hot napkin, and over these the ordinary bedclothes, and he then left me, telling me that I was thus placed 'pour calmer,' and that I might so sleep, or lie as long as I liked. The process, as far as any interference from without was concerned, was now completed, and, thus left, I fell

into a refreshing sleep of half an hour. Some persons sleep much longer. Such was the douche."

"La douche Écossaix," the name given to it at Aix, subjects the patient to a quick transition from heat to cold alternately. It produces the same effect as the hydrotherapeutic treatment, over which it nevertheless has the advantage of being able to expedite reaction by means of the warm water with which the body is bathed at the finish, without naming besides some principles and virtues of the mineral water which are not met with in the treatment by ordinary cold water.

The vapour bath consists in placing the whole, or a part of the body in a special apparatus, whither is conducted vapour, natural and condensed, just evolved from the thermal water circulating in reservoirs beneath.

3. By chemical combination is understood the manner in which the elements of mineralization are united. The manner of union is not known to analysts. These combinations produce stimulating effects upon the skin only in proportion to their presence in the mineral water—such as the powerful Chlorinated Sodic and Sulphuric.

The waters of Aix rest their reputation of being stimulant principally upon the causes of excitation

already mentioned—namely, electricity, thermality, and the stimulating mechanical processes employed.

Through this stimulation three kinds of effects are obtained—*a*, Immediate ; *β*, Consecutive ; and *γ*, Ulterior.

*a. The Immediate Effects.*—There is a peripheral redness of the whole body ; the circulation is accelerated ; the temperature of the blood rises from about 1° to 2° C. (1° to 4° Fahr.), since any cooling through the lungs, or evaporation by perspiration, is prevented in an atmosphere so thoroughly saturated with vapour ; the pulse becomes fuller, and the respiration is quickened. There is a sense of uneasiness, and sometimes precordial spasm accompanied with giddiness. But, happily for the patient, perspiration sets in—it is the safety valve—a profuse perspiration, which increases in proportion to the phenomena we proceed to point out, of which it corrects the inconveniences, and prevents the dangers arising therefrom.

*β. The Consecutive Effects* are not slow in showing themselves. There ushers in a singular relief, a remarkable suppleness both of muscles and joints, walking is easier ; lastly, the bather experiences general comfort.

γ. If this stimulation be submitted to several times, the ulterior effects are obtained. By means of the perspiration, a serous exudation is produced, having its "contre-coup" in the lymphatics and capillaries, which undergo a very opportune degree of distension in plethoric constitutions. All the functions are carried on more easily. One can say, with Professor Gubler, that the whole system experiences, as it were, a real "appel de vivre." Nevertheless, at times, there intervenes some prejudicial phenomena, such as constipation, a slight sense of fulness of the head, and even moderate fever; but these symptoms quickly pass away under a temperate regimen, aided by any mild alkaline water taken at meals, such as St Simon (near Aix), St Condillac, or St Galmier, together with a slight purgative.

Before leaving this subject, and without entering into the numerous therapeutic applications of the sulphurous waters of Aix, which will form the theme of a special chapter, I will refer in a few words to some affections this stimulating method applies to more particularly. It invigorates the vital actions collaterally only, it accelerates the circulation, it absorbs the tissues in course of proliferation, and incites to activity latent forces. The organism



sustains, on the whole, a real loss, but by stimulation it reaches a much greater functional activity, permitting it to repair in part this loss.

What I have said justifies the employment of this method of treatment in troublesome skin affections, which must be conducted to an acute stage to effect a cure—the cases in which Professor Hardy employs with success *copaiba*, such as in certain forms of lichen, and *psoriasis inveterata*.

The stimulating method becomes also a touchstone in syphilis. The lively excitation produced upon the skin sometimes brings out, externally, the specific eruptions which denote the presence of this diathesis in the economy. When these manifestations appear, they are valuable signs, removing all hesitation as regards prognosis and treatment.

Chronic affections of the joints, *hyarthrosis*, *sciatica*, stiffness in tendons or joints, and certain constitutional, and chronic affections alike derive benefit from this stimulant action. It succeeds also in certain cases of *asthenia*, and *languor*—so often very troublesome complications.

Lymphatic subjects, overburdened with *embonpoint*, lose a portion of their grossness by this treatment. Indeed, powerful stimulating medication makes the liquids disappear first, then imper-

ceptibly the adipose tissue itself is absorbed. If, on the contrary, a moderate and temperate medication is employed, functional activity is developed, and the subjects, to whom it is applied, are better nourished and their systems better repaired—the results to be avoided.

It is also a means for emptying the lymphatics and capillaries of persons of soft and serofulous tissues. When this result is obtained, a more temperate and tonic treatment is followed.

## CHAPTER III

### SEDATIVE, OR SOOTHING AND TONIC MODE OF TREATMENT

*Piscines (swimming baths).—Salles d'Inhalation.—  
Quieting effects*

I HAVE shown that the stimulating method of the Aix treatment consisted of the employment of vapour baths, douche Écossaise, douche chaude to a temperature of 36° to 44° C. (97° to 112° Fahr.), with an appropriate shampooing, according to the effects desired. I would now say a few words about the sedative, or quieting medication. Let me state at the onset, it demands much pleasanter proceedings than the stimulating method; that is to say, lukewarm baths, inhalation of the sulphurous gas, and douches, at a temperature varying between 34° and 36° Fahr. In these cases the bather is not wrapped up in the “maillot,” swaddling clothes, and is rarely conveyed to the hotel in the sedan, or

“chaise à porteurs.” If the weather be inclement, and the patient very subject to colds, the sedan would be necessary. The bather, after the douche, contents himself with a walk, which favours the moderate reaction one wishes to result.

The quieting effects obtained by the waters of Aix, administered otherwise than in douches and étuves, had already in 1853 attracted the attention of my father, who wrote at this date: “We must not forget that side by side with this means, much too energetic in certain cases, and for certain temperaments, there exists other ways less active, yet nevertheless very efficacious for taking the waters of Aix. These are—besides the drinking of the waters—the sulphurous bath, the swimming bath, the inhalation room. The waters of Aix are not then too strong: they only become so to those who employ them without judgment, and in the absence of judicious directions. One must be persuaded that there is no temperament so feeble, no constitution so debilitated as not to profit by them. I have made several experiments, conclusive by their success, on very young infants, and on the most delicate and nervous women, (*‘Remarques sur l’Action des eaux d’Aix dans la Phthisie Pulmonaire.’* Par le Dr Bertier, 1853).

Since the date at which my father so published the result of his experience, there has been erected, the *Établissement de Marlioz* with its cold sulphurous inhalations. Some very large swimming-baths have also been constructed at the *Établissement d'Aix*, and the physicians of this place have brought together all the most varied and complete agents of the soothing mode of treatment.

Many conditions are necessary in order that a natural medical water may produce quieting effect.

In the first place, it ought to evolve a hyposthenic gas ; namely, sulphuretted hydrogen. MM. Trousseau and Pidoux thus express themselves on this point in their '*Traité de Thérapeutique*':—"It is certain that the nervous system and the blood are particularly influenced by this gas, which has a very manifest stupefying power. Accordingly one can understand, up to a certain point, how it diminishes the inflammatory stimulation of the lungs in chronic catarrhs, and in commencing phthisis, and how the mineral sulphur waters give the most unlooked-for results in the diseases of which we are now speaking."

It is necessary, then, that this water be not too charged with active principles, and that it be taken

lukewarm, or cold. Lastly, it is essential to have a complete instalment of baths and douches at a maximum temperature of 35° C. (95° Fahr.).

The waters of Aix and those of Marlioz, which so happily perfect each other, combine all these conditions. "The bains and the piscines," says Sir Dominic Corrigan, "may be dismissed in a few words. The bain is simply a plain warm bath, in no respect differing from an ordinary warm bath at home. The piscine is in every respect a most comfortable bath, and very superior, in my opinion, to the bain. It is a very fine swimming bath, warm as the ordinary warm bath. It is open nearly the whole day, and capable of accommodating about thirty or forty bathers without crowding, permitting swimming and diving. It is provided at one end with a cold douche, in which many of the bathers take great delight, alternating warm bath and cold douche. When about to leave the bath, the Oriental custom of clapping the hands two or three times is the signal, and an attendant receives you on emerging with a hot sheet, dries your limbs with hot napkins, and then assists you, if necessary, in dressing. The temperature of the piscine was usually about 35° Cent. or 95° Fahr. I tried the warm bath in a private room and the piscine, but

after one trial of each I invariably gave the preference afterwards to the piscine."

Mathias Mascard carried out in 1801 some experiments upon the lukewarm baths; these have been verified many times since. They agree in all points with those I have been able to make myself at Aix. I cannot do better than give a *résumé* of them :

"1. Every bath of a heat below  $35.5^{\circ}$  C. ( $96^{\circ}$  Fahr.) lessens the frequency of the pulse whenever particular causes do not oppose this effect.

"2. The more frequent the pulse is, the more it deviates from the natural state, the more the bath lowers it.

"3. The temperature of the bath, which appears to have the greatest power in lessening the pulse, is that which I designate under the name of warm, or lukewarm, from  $35^{\circ}$  to  $29^{\circ}$  C. ( $96^{\circ}$  and  $85^{\circ}$  Fahr.).

"4. The more prolonged the baths, the more the frequency of the pulse is diminished; I have noticed that, as regards myself, a bath of an hour and a half has lessened the pulsations from 63 to 54" ('De la Nature et de l'Usage des Bains,' par Mathias Mascard, 1801, pp. 79, 80).

"Whilst the warm bath lessens the loss of heat," says Dr Braun, "it moderates the normal compensating reaction; and whilst it surrounds the skin

with an equable temperate medium, it frees the loss of heat from all variations of time and place, and produces a quieting effect" ('On the Curative Effects of Baths and Waters,' by Julius Braun. Translated by Hermann Weber).

The large piseines of Aix, the temperature of which does not exceed 35° C. (95° Fahr.), and where one can swim at one's ease, are also in themselves veritable "salles d'inhalation," whence the sulphuretted hydrogen evolves itself mixed with the vapour of the lukewarm water. They are doubly sedative.

Of the three means employed to obtain the sedative action, namely, the inhalation of the sulphurous gas, the drinking of the water, and the lukewarm bath and douche, the first is much the most efficacious.

Sulphuretted hydrogen, breathed in small quantity, combines with the globules of the blood, prevents oxygen reaching them, retards their destruction, and lessens also the phenomena of respiratory combustion. A portion of this gas, moreover, seizes upon the oxygen of the air, and contributes also to depress the temperature of the body. These complex phenomena produce a very marked sedation in the different systems. One notices a diminution of the beats of the heart, a lessening of the circulation,



the blood reaches the different organs in less quantity and force, and, as a result, there is much less tendency to hyperæmia. The patients also, who come to Marlioz to respire the gas, experience an invariable relief, their cough is quieted, the oppression disappears, and the movements of the heart become less frequent.

M. Niepce has made some experiments at Allevard, which would appear as if conducted at Marlioz, if one did not know that these two stations had a great analogy to each other. He says, "Hæmoptysis diminishes in frequency, and in quantity, and is rapidly checked by the influence of the not too prolonged inhalation of this gas (sulphuretted hydrogen). The sedation upon the movements of the heart, and upon the circulation, manifests itself equally as well even when this organ is not affected, and one can understand, in consequence, the relief which pertains to the lungs from this lessening of the circulation" ('*Sur l'Action Thérapeutique de l'Eau Sulfureuse d'Allevard*,' &c. Par le Dr Niepce, Inspecteur de ces Eaux, 1855, p. 47).

This sedative medication, of which I have briefly sketched the effects, produces excellent results in cases of simple bronchitis: in tuberculosis with irritation of the respiratory passages; that is to say,

accompanied with spasms, distress, uneasiness, and tickling.

It succeeds again very well in rheumatic persons enfeebled by age, or excesses of different kinds; and lastly, at all times when it is desired to renew the vital forces of a debilitated constitution.

It is beneficial too for women who suffer from nervousness and irritability, and for that numerous class of asthmatics for whom a too rarefied atmosphere, and an elevated situation are altogether contra-indicated. On entering the salles d'inhalations, they experience an agreeable coolness, respiration is easier, and the pulse diminishes in frequency. They realise all the phenomena of which we have before spoken.

Professor Gubler says, "The Eaux Sulphurées Calciques also attain to a worthy position, and render good service in certain forms of tuberculosis of the respiratory organs, characterised by a continued irritability of the affected surfaces, which demands the topical sedative action of sulphuretted hydrogen, as well as the metamorphic action of the sulphurous principle introduced into the circulation through the stomach."

## CHAPTER IV

### INTERNAL ACTION OF THE SULPHUR

*A Course of Water-drinking.—The Thermal Fever.  
—Diet.—Poussée.—The most appropriate season  
for taking the baths at Aix*

AFTER having briefly pointed out the effects of the external treatment, I will now say a few words about the internal cure, which it is often necessary to employ, concurrently with the first named, in utilising the warm waters of Aix, or the springs of Marlioz or Challes, which are cold, but much more sulphurous.

The physiological action of Sulphur, taken internally, is described in the following manner by Professor Gubler :—"Once having reached the blood, sulphur acts as a diffusible stimulant, it accelerates the circulation, raises the temperature, inflames the viscera, almost determines hæmorrhages, causes headache, sometimes giddiness, increases cutaneous transpiration, and produces,—when the

dose is large and long continued,—an appreciable febrile movement. This fever is accompanied by an eruption,—erythematous, miliary, or vesico-pustulous,—which can assume also other forms in accordance with the intensity of the cause, and the constitution of the subject. This exanthema is known in thermal stations under the name of *poussée*.

“After a time, sulphur seems to be able to profoundly modify nutrition, the anatomical state of the tissues, and, in consequence, their appropriate function. This alterative action may be attributed to the integration of a very great number of molecules of the metalloid into the organic plasma, and the histological elements which have been polysulphurized.

“The stimulant, or irritant action exercised by sulphur upon the skin, and the respiratory mucous membrane, is explained by the passage of this principle through the secretory apparatus of these teguments. Sulphur, in fact, is metamorphosed in the circulation: one part into sulphuric acid, then into sulphates, which pass in the urine, thus its diuretic action; and the other part into sulphuretted hydrogen, which, like other volatile substances, escapes by the lungs and the sudoriparous glands.

As for the remainder, it is possible that the sulphur reaches the cutaneous emunctory under another form, that, for example, of a sulphuretted essence. Invalids always exhale a manifestly sulphurous odour, and their emanations also materially effect the brilliancy of metallic silver” (*‘Commentoires Thérapeutiques de Codex Medicamentarius,’* par A. Gubler, Professor de Thérapeutique à la Faculté de Médecine de Paris, &c. &c.).

The sulphurous waters of Challes possess the property of making the urine, and excreta alkaline.

“1. In drinking,” says M. Bonjean, “in a day, a litre of Eau de Challes, by glassfuls every second hour, the urine, voided five or six hours after the ingestion of the first glassful, loses its acidity; it is then completely neutral, and soon acquires a very appreciable alkaline reaction. During the continuance of the treatment, the urine preserves its alkaline state, but it resumes its ordinary acidity when the use of the mineral water ceases. The alkalinity does not restrict itself to the urine, it extends to the perspiration, and the other secretions.

“2. The urine is deprived of all its colouring principle; it is rendered as limpid as water, and does not deposit any mucus.

“3. In becoming alkaline, the urine absorbs,

moreover, some iodine and bromine, of which the water of Challes contains considerable proportions. Without concentrating the urine, it is easy to ascertain, by nitric acid, the presence of iodine, of which it contains evident traces for six or seven days. I have equally been able to recognise iodine in my saliva for five or six days" (*Recherches Chimiques, Physiologiques et Médicales sur les Eaux de Challes,* par M. J. Bonjean).

The Eau de Marlioz, taken an hour before a meal, notably increases the digestive functions and stimulates the appetite. It is also diuretic, but in a less degree than that of Challes.

This alkalinity of urine, and diuresis, produced by the water of Challes taken as a beverage, explain the good effects derived from the water in chronic gout. Without doubt, the stimulation produced upon the kidney provokes the excretion of a greater quantity of uric acid (which, according to the researches of Dr Garrod, is secreted in insufficient quantity in the urine of chronic gouty patients), and prevents its accumulation in the blood. "From these, and other less complete examinations, I am inclined to think that in individuals who suffer frequently from gout, even though no visible deformity, or deposits have resulted therefrom, the kidneys lose, to some

extent, their power of excreting uric acid, and that the blood is often kept impure from its presence ” (‘ Treatise on Gout,’ Dr Garrod).

Before concluding the physiological study of the waters of Aix, I must not omit to mention the two phenomena formerly considered as critical, namely, the thermal fever, and the *poussée*.

Without denying the existence of the thermal fever, I dare to affirm, nevertheless, that it is excessively rare, and that it is not met with in patients who follow the instructions of their physicians, and who do not exceed the limits assigned to the continuance of the treatment, and the length of each bathing operation.

It is certain that a treatment irrational, or prolonged beyond propriety, can, and should bring about a state of over-stimulation and fever. But we must guard ourselves against calling all gastric derangements, though febrile,—thermal fever: derangements which are due to causes already enumerated, and to others more accessory, such as the fatigue of the first douches, the dog-day heats of summer, or, better still, the too sumptuous mode of living, perhaps, at the large hotels. The following are the judicious terms in which Sir Dominic Corrigan describes this last danger:—“There are

some impediments, which the waters of Aix have to contend against, with which we ought to be acquainted, as they interfere to our prejudice as well. The first of these is the dietary. It is too good for visitors from our country; the French breakfast, or *déjeuner* at half-past 10 or 11 o'clock in the morning is too heavy—fish, butcher's meat, fowl, fruits, mushrooms, wine, &c., eaten generally in a very high temperature, followed by a dinner, excessive in proportion and kind; while in the middle of the day, and without exercise to work off these effects, the merits of 'Cognac,' 'Chartreuse,' 'Kirsch Wasser,' and 'Elixir of Spa,' are discussed by gentlemen, *sous les arbres*, who naturally refer to ladies for their opinions, and mixed in these colloquies, now and then, the puff of a mild cigarette, but not from Irish lips. We had better recommend ourselves and our friends, in visits to Aix, to avoid these impediments, and to content themselves with our own plain breakfast, without wine, and to refrain from 'Kirsch Wasser' and 'Chartreuse,' &c. There is also a habit of sitting out under the trees, in the gardens of the hotel, to listen to travelling musicians and prestidigitateurs. Time creeps on, and with it the almost imperceptible, but not less certain and injurious, night chill. These



two counteracting agents, to the good effects of the waters of Aix, ought to be shunned."

A glass of Hunyadi Janos, or Birmenstorff water, taken early in the morning for some days, and repose, aided by a temperate regimen, will speedily remove this supposed thermal fever.

Formerly, *la poussée* would have been discussed as a critical phenomenon, but it is now known to be simply the result of local irritation produced by the sulphur, the natural heat of the water, or its vapour impregnated with sulphuretted hydrogen. It occurs rarely in bathers who do not follow a too prolonged treatment, or who do not drink too great a quantity of the Eau de Challes; but it is seen to occur often in the shampooers, "*doucheurs* and *doucheuses*," as their duties oblige them to remain many hours in contact with the sulphurous principle. It then attacks, by preference, the inner part of the thighs and the legs. It is characterised by a rubeoloid eruption, more or less diffuse, but not elevated above the skin. It is unaccompanied by any febrile phenomenon, and disappears simultaneously with the removal of the cause that produced it.

There is one point to which I would especially draw the attention of physicians, namely, the proper

time they should advise their patients to visit Aix. This very important subject has never even been hinted at in the different pamphlets written about the waters of Aix-les-Bains. I always suggest to my English brethren, that they had better dissuade their patients from going to Aix, from the middle of July to the end of August. During this time, the heat is somewhat trying, and it might counteract the beneficial effects of the waters in persons not accustomed to such a warm climate. The months of July and August, however, are preferred by the élite of French society. Our season is then in its full glory. The months which seem most suitable for those suffering from any serious complaint, or who fear the great heat, are May, June, and September, to the middle of October.

## CHAPTER V

### THERAPEUTICS

*Rheumatism, acute and subacute—Arthritis—Rheumatoid Arthritis, or Osteo-Arthritis—Hydrarthrosis—Strumous and Rheumatismal Affections of Joints—Muscular Rheumatism—Sciatica*

RHEUMATISM is, of all diseases, *the one* which is most successfully treated by the waters of Aix. “These waters are specific as regards it,” says Dr Lombard, of Geneva (‘Une Cure aux Eaux d’Aix’). And Dr Guillard adds, “They have a right to claim for their portion—rheumatic affections, whether they be simple, or *cum materiâ*—those which M. Durand-Fardel attributes to the Mont Dore, and those even for which he does not find sufficient a beneficial thermality, a moderate amount of sulphur, and which demand, according to him, the waters of La Bourboule, and those of the sea. All, in fact, even after having resisted the artificial vapours of

large cities, and natural waters more mineralized than ours, but less gifted as regards thermality, volume, mode of employment, thanks to our installation so ingeniously varied, find at Aix relief or cure" (*Compte-rendu des Eaux d'Aix en Savoie*, 1858. Par le Dr Guillaud).

Acute rheumatism is one of the forms of this affection in which the action of the waters is most promptly felt, especially when the affection is recent. My father thus expresses himself on this subject in his Presidential Report for the year 1857. "Although it may be understood that the treatment by mineral waters is only applicable to chronic affections, it is not so in articular rheumatism. In this form of the disease, the thermal treatment can be tried with great success in the subacute stage; that is to say, immediately after the acute state has passed, the invalid ought to be sent to Aix as soon as he is able to bear the journey. The febrile state is not always a contra-indication for their employment. It is true, that in these cases the baths and the douches cannot be employed, but recourse can be had to the sulphurous vapours; they are well borne by invalids, who soon experience from them happy results." The intimate relation which exists between this form of rheumatism, and endocarditis

and pericarditis, explains the success of the waters of Aix in these affections. Dr Binet, of Geneva, willingly permits me to put forth here the testimony of his experience. He has seen several cases of rheumatismal endocarditis, in infants, completely cured after a course at this thermal station. The evidence of Dr F. Vidal, whose experience is great, is also explicit on this subject. He has told me, that several of his patients, afflicted with disease of the heart, not complicated with severe and irremediable disorders, have improved, both in respect of the circulation and the rheumatism, under the sedative and tonic treatment. Every year a great number of invalids, who have had one or several attacks of acute rheumatism, come to Aix to get rid of the sequelæ of this affection, and to avoid a relapse. Their hope, I am happy to say, is usually realised, and the reputation of the waters of Aix, in these cases, is a fact about which all hydrologists are agreed.

Subacute rheumatism ought to be regarded as a distinct species. "In this form," says Dr E. Besnier (*Dictionnaire des Sciences Médicales*—*Rheumatisme*), "resolution will be slow, opposition to therapeutic means more marked, the consecutive lesions much more important and more obstinate ;

functional alterations, articular crackling noise, periarticular sclerosis, pseudo-ankylosis much less rare. The contrast is very remarkable as regards acute articular rheumatism, which, even after its gravest forms, only rarely leaves consecutive lesions of this order." A residence at Aix will be the most efficacious means to produce a rapid disappearance of the articular stiffness, and to facilitate the absorption of the exudation.

The diagnosis between subacute rheumatism and certain cases of chronic gout, in which the large and small articulations are attacked without the production of tophaceous deposits, is often very difficult, and the physician, undecided as to the affection, would have the same indecision as regards the expediency of a course at Aix; but when I have demonstrated (see Chapter VI, Gout) that the waters of Aix give equally satisfactory results in the chronic form of these two maladies, he should have no further hesitation about the treatment.

CASE I.—*Severe subacute rheumatism in a patient whose father was gouty, presenting the difficulty of diagnosis just mentioned.*—Lord X—, nearly forty-five years of age, was sent to me by Dr Langdon Down with the following letter :

“DEAR SIR,

“ \* \* \* I have sent a patient of mine, Lord X—, to Aix-les-Bains, and have advised him to consult you. I shall be obliged if you will give his case your best attention. He has been for some time the subject of rheumatism in consequence of imprudence in hunting, which has exposed him to getting very wet. Latterly, however, the symptoms are those of gout—podagra—which he inherits from his late father. He is just recovering from a subacute attack, and I hope will be able to leave London on Monday, reaching Aix-les-bains on Wednesday. I have restricted him from wines, allowing him only a *little* whiskey with Apollinaris water, preferring that he should take the water alone. When he had a high temperature, I gave him salicin with advantage, now, and until he reaches you, he is taking quinine.

“ Yours faithfully,

“ J. LANGDON DOWN.”

Lord X— informed me that for the last three years he had suffered continually in the knees, ankles, and feet; the latter were a little swollen, and very stiff. He walked with great difficulty by the aid of two sticks. His general health was good. There were no tophaceous deposits on the external

ear; the affection had not commenced in the large toe. His father had been gouty.

Towards the end of the treatment, the stiffness and puffiness of the aukles and small articulations had almost entirely vanished, and Lord X— could walk without the assistance of his sticks, which he had not been able to do for three years.

This case well demonstrates the efficacy of the waters of Aix in those bastard forms, where rheumatism, accidentally produced by cold, grafts itself upon a gouty diathesis. “The gouty, very sensible to atmospheric vicissitudes, are predisposed to rheumatism. Gout does not only predispose to rheumatism; it can, in blending itself with it, modify the expression of it, principally in subjects who have had a previously gouty arthritis, or who are hereditarily predisposed to the artieular manifestations of gout.” (*‘Clinique Médicale.’* Par le Dr Noël Gueneau de Mussy, Paris, 1874, p. 287).

CASE II.—*Subacute rheumatism contracted in India. Hereditary predisposition. Recovery.*—Colonel M— was specially recommended to me by Mr Arthur Noverre, and Dr Garrod. I append the letter which the former wrote me touching the case.



“DEAR SIR,

“The bearer of this note, Colonel M—, had rheumatism of some form or other hanging about him for some years in India. I may add there is rheumatism in his family, and that a younger brother has had rheumatic fever twice in his life. Colonel M— came from India in March. In April, he had an attack of erysipelas of the face and head. As soon as that passed off, he had an attack of rheumatic fever. There was at the time, and all through, a moderation in the symptoms; the perspirations were not so profuse as usual; the swelling of the joints was not very great, but there was a remarkable helplessness in all the joints. The fever did not run high; the temperature varied from  $101^{\circ}$  to  $103^{\circ}$ , soon fell, but remained at about  $100^{\circ}$  for weeks; and, as you see, although he has been about for six weeks, he has not yet recovered the perfect use of the finger-joints, and has daily some fresh symptoms of rheumatism in one joint or another  
\* \* \*

“Yours very truly,

“ARTHUR NOVERRE.”

Colonel M— left Aix much benefited, and Mr

Noverre informed me, some months after, that the treatment at Aix had completely cured his patient.

In acute rheumatic synovitis, localised in one joint, when the inflammatory symptoms have disappeared, the local vapour and douche baths with shampooing, if commenced early, will be found beneficial in removing the remaining stiffness.

“In this affection” says Mr W. Adams, “the acute symptoms generally continue for three or five months. Suppuration is often feared, but no liability to this process exists. It terminates neither in suppuration nor ulceration, but in the effusion of lymph, and organisation of adhesions, within and surrounding the joint. The most frequent cause of this affection is the previous existence of gonorrhœa, but sometimes a history only of leucorrhœa can be traced, hence the propriety of the term ‘Genital Rheumatism.’ In subacute and chronic rheumatic synovitis, the knee-joint is generally affected, and the form of the swelling corresponding to the synovial sac is diagnostic; fluctuation is distinct; there is some increase of heat and a little pain, but no redness of the skin, and no disposition to suppuration or ulceration” (‘Lettsomian Lectures delivered before the Medical Society of London in 1869.’ By William Adams, F.R.C.S.)

The vapour baths, and the douche, employed with prudence, will aid in promoting the absorption of the fluid, and in causing the puffiness to subside, and the articular stiffness to disappear. Gonorrhœa also forms a complication of subacute synovitis, and though only one joint is generally affected, both knee-joints may be involved, and rheumatic iritis be an accompaniment.

We now arrive at a form of rheumatism very common in England, Ireland, and Scotland, which, to my knowledge, has not been studied in an adequate manner by hydrological physicians who have written on the waters of Aix-les-Bains, and about which I desire to lay stress here in a very special manner.

During the last five years\* I have had the care of a number of invalids afflicted with this affection, and I have been able to study, with benefit, the modifications stamped on the disease by the thermal sulphurous treatment. I wish to submit for consideration, not only the result of my experience, but also the opinions of two eminent physicians, whose works are as well known in France as in

\* The notes which follow are part of a paper read before the Société d'Hydrologie Médicale of Paris at its meeting the 19th March, 1877.

England. I refer to the late Dr R. Adams, of Dublin, and to Dr Garrod, who speak of the waters of Aix in terms which I shall have pleasure in reproducing a little later.

It does not pertain to the limits of this book to give the history of this affection, nor even to enumerate all the names of the different authors who have taken note of it. Haygarth, R. Adams, Garrod, Fuller, in England; Cruveilhier, Deville, and Broca, E. Vidal of Paris, Chareot, and Ernest Bernier, in France, have given a description of it. It has been successively named rheumatic gout, chronic rheumatic arthritis, rheumatism of Heberden, rheumatoid arthritis, osteo-arthritis, arthrite sèche, usure des cartilages articulaires, rhumatisme articulaire chronique, &c.

Between rheumatism and this form of arthritis, the resemblance seems, at first, complete enough; both are produced by the same influences; they have almost the same origin. But chronic articular rheumatism exhibits itself by its progressive advance, by the lack of fever, by the absence of complication on the part of the heart (Garrod); lastly, by its tendency to ulcerate the articular cartilages, and to eburnate the osseous surfaces. It can be confounded also with the rheumatism which

frequently follows urethral affections ; the history of the disease will furnish data in this case for a correct diagnosis.

According to Professor Charcot, only in a sixth of his cases had he been able to trace it to hereditary causes. It attacks individuals of all ages, and without distinction of sex. Dr Garrod says, " Everything, which causes debility and loss of tone in the circulation, acts as a predisposing cause, and it is not unfrequently excited by the same causes which had led to acute rheumatism, more especially by cold and moisture."

All the articulations can be the seat of this disease, which affects the internal ear by ankylosis of the ossicles, the larynx, the jaws, the neck ; lastly, it is often complicated with psoriasis, prurigo, eczema, but very rarely with endocarditis or pericarditis.

If, at the onset, the almost fatal progress of this affection be not checked, it very soon terminates by invading all the joints. The invalid loses, little by little, the use of his limbs, and even of his jaws. The superior cervical vertebræ are also attacked, causing absolute rigidity of the neck. At length, the unfortunate sufferer, helpless and impotent, drags

to the grave an existence as terrible to himself as for those who are around him.

The waters of Aix-les-Bains have happily the power of arresting the progress of this sad disease, and of curing it, when the treatment has not been delayed too long. In fact, in the first stage of the affection, when the joints are swollen from accumulation of fluid in their cavities (chronic synovitis), the waters greatly facilitate its absorption; and later, when the joints diminish in size and resist the touch more firmly, the internal sulphurous treatment by the Eau de Challes (which acts here doubly through the large proportion of iodine it contains, and through the sulphur, which is, at the same time, tonic and stimulant) combined with the external treatment (which must be employed with much circumspection), will be found,—in inciting all the functions,—to raise the vital forces, to give tonicity to the circulation, and to ameliorate or cure the deformities already very marked in the different joints. With Dr Garrod, I think the administration of alkalies is altogether useless, and perhaps even hurtful, in this form of rheumatism; but, like him, I always advise, before and after the cure at Aix, a tonic and reconstituent treatment of quinine, iron, and cod-liver oil.

There are cases in which improvement would have been more rapid, and success more pronounced, had patients been advised to undertake, after leaving Aix, a supplementary course of undoubted and energetic reconstituent waters, or simply the living in a dry and elevated locality.

This practice is followed and recommended by Professor Gubler, who insists rightly, in his remarkable work, '*Du Traitement Hydriotique des Maladies Chroniques*,' upon the necessity of auxiliary cures. It is also the practice of Dr Garrod, who generally advises a supplementary season at Schwalbach Spa, or St. Moritz. The latter should be undertaken during the months of July, and August, on account of the pure and invigorating atmosphere. Lastly, as the greater portion of the invalids of whom we speak inhabit a cold and humid climate, they should be advised to pass the winter following the treatment, in a warm and dry latitude.

It is to the combination of all these adjuvants, that the great number of results, obtained in the treatment of this affection, is due. I have not the presumption to accord to the waters of Aix an exclusive specific, for other sulphurous stations, placed in the same conditions, could also give very good results.

I would notice, *en passant*, the danger to which invalids, attacked with osteo-arthritis, expose themselves in using Turkish baths. They are now in fashion in the great cities, and are much abused. Not to be accused of pleading *pro domo meá*, I will here quote the opinion of a physician, whose impartiality and experience are above suspicion. "My experience of its use," says Dr Garrod, "may be thus summed up :

"1. During the time the patient is taking the bath, and for a short time afterwards, a feeling of relief from pain is experienced, and the injured joints become much more movable.

"2. It is very seldom that permanent benefit is obtained from its use in rheumatoid arthritis.

"3. It very often does much mischief from inducing debility."

The following is the opinion of Dr Robert Adams on the treatment of this affection by the waters of Aix :—"Among the watering-places on the Continent which have long maintained a reputation for being useful in cases of chronic affections of the joints, we should not omit to mention Aix-les-Bains. The town is exquisitely situated (as described to me by one of my patients, a young medical man whom I had induced to go there), and



is surrounded by the most magnificent mountains, the valleys of which are filled with the richest crops. Besides, close to the town, is Lake Bourget, one of the most beautiful lakes I have ever seen, on which excursions are made in boats by invalids, and the pleasure of fishing enjoyed." Then follows a description of the methods of treatment employed at Aix. Lastly, the letter terminates with these lines :

"Since I last wrote, I am happy to be able to say that I have made a most marked improvement. I am now able to walk about my room, and up and down stairs, without the assistance of my stick ; and I have even been able to walk a little about the town without this aid ! The pain in my left shoulder, which has been so annoying during the last six weeks, has nearly disappeared ; in truth, in every respect, the improvement has been most signal. Dr Bertier, the resident physician, thinks that I may return home in a fortnight." Dr Adams concludes his remarks on Aix by another trenchant observation :—"I may here also refer to another example, illustrative of the good effects and mode of application of the waters of Aix-les-Bains, in a case where an obstinate chronic arthritic affection of the knee existed, and which had previously

resisted much varied treatment. The case was that of a gentleman, æt. 27. He was a learned and literary man, who, for some time previous to his having this affection of the joint, had been exhausted by too much mental labour. When I saw him, he had a chronic arthritic affection of the knee, attended with a set of somewhat anomalous symptoms. He complained of a sense of coldness of the joint, and of uneasiness in it, which seemed to be relieved only by the constant application of cloths saturated with cold water. The patient was lame, and disabled from all kinds of exercise, except that of a carriage. As the affection of the joint had hitherto resisted all treatment, this gentleman resolved to take a course of the waters at Aix-les-Bains, where he sojourned for six weeks, and he derived the greatest benefit from following the means usually resorted to there for the treatment of chronic affections of the joints. Having heard of the complete recovery of the knee-joint in this case, I wrote to the patient, and, knowing him to be a man of much intelligence, requested him to give me his opinion as to the merits of the waters of Aix-les-Bains, and as to the mode in which they had been administered in his case." ('A Treatise on Rheumatic Gout, or Chronic Rheumatic Arthritis of all

the Joints,' by Robert Adams, Surgeon to Her Majesty the Queen, &c.)

The judgment of Dr Garrod upon the waters of Aix is not less explicit :

“ Since the publication of the last edition of this work, I have had considerable experience of the value of the treatment by mineral waters at various spas, both British and foreign. The waters I have found most beneficial in rheumatoid arthritis are those of Aix-les-Bains, at which place the douche forms a most important part of the treatment ; with the douche is usually combined the internal use of the waters either of Aix, or Marlioz, or Challes. I have seen numerous cases of rheumatoid arthritis, in its earlier stages, most signally benefited by this treatment, and in several, the disease seemed to have been completely arrested. The Aix treatment is also peculiarly valuable when there has been any skin complication, and one instance will be mentioned, further on, in which the effect of the waters appeared to be almost marvellous.”

CASE III.—*Rheumatoid arthritis, and extensive psoriasis marvellously benefited by treatment ; especially by a course of Aix-les-Bains waters.*—A gentleman, 73 years old, came under my care in January, 1874.

His history was as follows:—As far as hereditary predisposition was concerned his mother's father was gouty. His own health had been fairly good throughout life. When about fifty years of age, however, spots of psoriasis appeared in different parts, and the disease became much more severe ten years ago, the whole back being covered with it. Three months ago, the left thumb was attacked with pain and swelling; afterwards the toes were affected. When first seen, several joints of the hands and feet were swollen, painful, tender, and stiff; there were pains in the shoulders, and various other parts. As far as the skin was concerned, there was a large patch of psoriasis covering nearly the whole of the back, also many swollen spots both on the upper and lower extremities.

Under a treatment, consisting chiefly in the administration of iodide of iron, arseniate of iron, and cod-liver oil, varied from time to time with other tonics, he improved considerably, but did not become well, so at the end of August I sent him to Aix-les-Bains; there he underwent the ordinary course pursued at the place, and became well as to the skin, and much better as to the joints, which continued to improve after he left . . . ."

I further quote the two following interesting

cases. They are selected from among numerous observations in my practice.

CASE IV.—*Severe rheumatoid arthritis with threatened deformity ; recovery.*—A lady from Ireland, Mrs D—, was sent to me in September, 1875, by Dr Garrod, and Dr Reginald Thompson, of London. She was about thirty-five years of age. The general state of health was not satisfactory. She had had no children. She told me, that she rode a good deal on horseback during cold and wet weather. The wrists and the joints of the fingers, were more or less deformed, swollen, and painful. She could only half shut her hands. The knees, ankles, and the small articulations of the feet, were somewhat enlarged, and very tender. She walked with much difficulty ; there was crackling noise, and stiffness in the knees, and the shoulders. The physicians, who sent her to Aix, recommended her not to return to England after her treatment, but to pass the winter in the south. She quitted Aix after a residence of twenty-five days, which had effected a great relief. As I had asked her to give me some news of herself, she wrote me, six months after her departure, the following letter :

“ After I left Aix-les-Bains last October, I spent

a little time in Italy, and then went on and stayed some time at Nice. It got so very cold there, that I returned to Ireland in December, as I knew I would have many more comforts at home. I paid my London doctor a visit on my way, and he said I was much better, and that the gout had been arrested. Indeed, I have been wonderfully well all this winter, and able to get about without any pain. I cannot speak too highly of the baths at Aix."

In two subsequent letters, this lady informs me that the recovery has been permanent.

Lastly, the following observation fully proves that advanced age, and a great general weakness, are not contra-indications of treatment of this affection by the waters of Aix.

CASE V.—*Rheumatoid arthritis of the neck and shoulders, accompanied with great prostration, in a gentleman aged 70; much improved by treatment.*—Major-General G— came to consult me in May, 1876, according to the advice of Dr Garrod. He was tall in stature, but very bent, and presented all the features of great debility. He stated, that he began to suffer from rheumatism, and to lose his energies during the last winter, which he had passed

in a very cold part of Scotland. He had felt very well, and robust the preceding year. His London physician told him that he was suffering from rheumatic gout in the neck, and shoulders. He could not, indeed, move the head to the left or right, and it was much bent upon the breast. He experienced severe pain in raising the arms, and heard a crackling noise in the joints; he was besides troubled with a very fatiguing cough. He begged me to tell him, if I believed frankly, whether his feeble state was due to rheumatism, or otherwise if age had caused the general feebleness in him. I told him that rheumatism had produced all the evil, and that I hoped to see his strength and energy restored to him at Aix. He commenced a course of treatment with all the necessary precautions, and bore well the douches with the customary shampooing. After eighteen douches and six baths, he left Aix in a very satisfactory state of health. About three months after his departure, I received from him the following letter:

“After your kind attention to me while at Aix, it is only right I should tell you how I have benefited.

“We remained in Switzerland, after leaving Aix, and went to Kissingen about the 12th of July, when

I commenced taking the waters, and shall have taken them for twenty-eight days, in a day or so, when we return to England. About a fortnight after leaving Aix, I gradually got more strength, and the rheumatic pains decreased in acuteness. Since then, I have continued to improve, and can now walk well, *hold myself erect*, and turn my head without much pain. Of course, I feel changes of weather, but I sleep well, and my digestion is good."

Were it not that I feared to lay myself open to repetitions, and to exceed the limits to which I would restrict myself, I could multiply examples, and observations. Those which I have reported, I hope will suffice to prove the efficacy of the waters of Aix-les-Bains in this form of rheumatism,

During the last five years, I have had the care of thirty-two invalids affected with osteo-arthritis of different degrees. Out of this number, nine have appeared radically cured after one or two courses of treatment at Aix; ten have been much relieved; in five cases, the affection had undergone a positive arrest; in the seven other cases, the local disorders were too advanced to hope for a lasting amelioration, notwithstanding, the general state appeared to be modified in a favorable manner, but I have lost



sight of the invalids of this last category. In one case, despite the treatment, the disease continued its fatal progress, accelerated by the development of pulmonary phthisis.

Chronic hydrarthrosis is also an affection which the waters of Aix are always able to correct or cure, as they assist in effecting the absorption of liquid still diffused, or in relieving the stiffness and the puffiness of which the joint is the seat.

In strumous affections of the joints, where the inflammatory symptoms have been checked, and there is little pain, and no tendency to suppuration, where the affection is rather a white swelling of the soft tissues than of the hard ones, and, lastly, in those cases accompanied with effusion, which seem as much under the influence of rheumatism as of scrofula, the vapour and douche baths, skilfully employed, can confer quite unhopèd-for benefits.

The following note bears out this statement :

CASE VI.—*Periostitis ; effusion into both knees ; white swelling to first degree ; recovery by resolution, following the thermal treatment.*—In the month of July, 1873, I was consulted by Mr R—, Interne des hôpitaux de Lyons, for articular troubles of the knee simulating the onset of a white swelling. I made

him follow a very strict treatment, after which he recovered completely. He is now a physician himself in a city of the Department de l'Ain, and conducts, without difficulty, the duties of a large practice. In recognition of the waters of Aix, he has sent me the following very interesting notes of his illness :

“The pathological antecedents are summed up in erysipelas of the face and scalp, acquired in the hospital, the 10th of September, 1872. The progress of this malady was normal ; the convalescence, notwithstanding, was slow. The 27th of October of the same year, the patient, without any known cause, had a slight periostitis of the inner condyle of the left tibia. Three days after, he experienced some acute pain in the corresponding knee, and two days later, in the left knee. The swelling was rather noticeable ; walking was possible, but complete extension, and flexion were very painful. The 10th of November, under the influence of a vapour bath, a slight effusion showed itself in both joints. The suffering was somewhat increased by it. Several vesicatories were successively applied. Under the influence of this medication, and after repeated paintings with tincture of iodine, the swelling diminished without disappearing entirely. The

winter passed without any appreciable change. The treatment consisted of tonics, and iodine applications. In March, 1873, the invalid was sent to the south. An immovable bandage was there applied to the left knee, after the diseased part had been lubricated with a hundred grains of mercurial ointment, and enveloped in a wax-cloth, according to the advice of M. Courty, Professor at Montpellier. This treatment produced a subacute inflammatory reaction, and very marked pain on movement. As the malady continued its progress, two lines of Vienna paste were applied upon the lateral parts of the patella tendon, and the joint again kept at rest for a month. The right knee during this time remained stationary, with a little effusion, and a little puffiness in the region of the patella." On the 15th of July, the patient was sent to Aix-les-Bains. At that time the right knee presented the state above described. The left knee was swollen, the synovial membrane thickened, movements painful and very limited, the depressions effaced; the synovial membrane under the patella had extended to each side of the patella tendon; the lateral cul-de-sacs, and the parts *above the patella*, were slightly thickened, and there was a little effusion. The duration of the hydromineral treatment was thirty-five days. At

the end of three weeks, the range of movement was more extended, so that the patient could walk on level ground almost without halting. At the close of the thermal treatment, he could mount the stairs, but he could not descend them. The right knee had a slight increase of effusion. Two months after the treatment, the synovia was entirely absorbed from the two sides, and the movements of the knee completely restored. From time to time, nevertheless, some lancinating pains were still felt; but another course of the waters, in 1874, accomplished the cure.

We had probably to do here with a white swelling of the left knee affecting the soft parts, and rather under the influence of rheumatism than serofula, for the subject presented otherwise the appearances of perfect health. He had had neither gonorrhœa nor syphilis; there was no history of serofula in his family. I was enabled, in this case, to prolong the treatment by reason of the vitality of the patient, the chronicity of the lesions, and the marvellous progress which each day's treatment effected on the malady.

Lastly, to conclude the subject of articular rheumatismal affections, I will mention that termed "periarthrite scapulo-humérale," and studied by

M. Simon Duplay from a surgical point of view ('Arch. générales de Médecine,' November, 1872). Dr de Cereuville, of Lausanne, in an excellent work ('Bulletin de la Société Médicale Lausanne,' Mars, Avril, 1874), assigns a rheumatismal origin to this affection. Invalids, who are attacked by it, are very quickly relieved by the waters of Aix, if they submit to the treatment from the onset of the malady. It is one of the rare cases which would quite justify the simultaneous employment of electricity, and the thermal cure.

Muscular rheumatism, the seat of which is variable, is a form of rheumatism which has nothing in common with the preceding. Its nature is but little known, and that little badly defined, yet it can produce grave disorders, among others—atrophy—as seen in the deltoid rheumatism of Duchenne.

“In muscular rheumatism,” says Dr Bernier (*loc. cit.*), “it is the muscular apparatus, viewed in its widest sense, which is attacked by rheumatism; just so, it is the entire articular system which is affected in articular rheumatism.” It is generally produced by the sudden cooling of the body whilst perspiring. But in a patient tainted with rheumatism, causes the most trivial in appearances, such as atmospheric influences, excess, fatigue, any injury, can give rise

to its manifestation in the different muscles. It is met with rather frequently, and may accompany acute, or chronic articular rheumatism.

Dr Hayem ('Dictionnaire des Sciences Médicales-Musculaire') has very well differentiated this form of rheumatism from ordinary myositis, in which there is swelling, hardness, protrusion, sharp pain on pressure, redness of the skin. None of these symptoms, except the pain, are met with in muscular rheumatism. The douche, vapour bath, and shampooing, will counteract with advantage the chronic form of the affection, and prevent the consecutive atrophy.

Infants affected with chorea, or rheumatic neuropathy, and patients attacked by those morbid manifestations which are classed under the name of "vague rheumatism," will also derive much good from a residence at Aix.

Rheumatism can invade the nervous system, and produce various neuralgias called, "rheumatic neuralgias," of which the most frequent is Sciatica. This affection is treated with the greatest success at Aix.

A volume could be filled with cases of Sciatica cured at this sulphurous spa. I have treated many during the last two years, and, in all, the

recovery has been very nearly as complete as the one related a little further on.

I have, in my case-book, the history of a gentleman, aged thirty-five years, who presented all the characters of syphilitic sciatica so admirably studied by M. Fournier ('Leçons sur la Syphilis,' 1876.) The patient was sent to me in July, 1874, by Dr Garrod. He recovered perfectly. I met him in London two years after his treatment by the waters of Aix, and was thus enabled to assure myself that there had not been a relapse.

Gouty Sciatica is also treated at Aix with the greatest success. A most interesting case will be found in the following Chapter on Gout.

In some cases of Sciatica connected with Diabetes, of which I have had to conduct the cure, the general treatment of the Diabetes, combined with a special thermal treatment for the local symptoms, has given marvellous results.

CASE VII.\* *Obstinate Sciatica in a young lady causing Curvature of the Spine ; recovery.*—Dr Billard, of Paris, sent me in June, Miss de W— with the following note :

“Miss de W— is attacked with a very rebellious

\* This case has been communicated by my father.

sciatica. I sent her last year to the spas of Nérís, from which she derived but imperfect benefit. She came again under my care, during a part of the winter, after the reappearance of the pains in the autumn. Miss de W— lives in the north, in a cold and damp locality. I think the waters of Aix may cure my patient, in whom I take the greatest interest.”

With Miss de W—, besides the persistence of the pains (which had lasted two years), there was marked curvature of the spine. After a rather strict treatment, the pains passed off, and the spine resumed its natural position. On her way to Paris in the following month of August, Miss de W— presented herself again to Dr Billard, who wrote me the following letter :

“ Two days ago I parted with Miss de W—, who returns to the north almost completely recovered. I am very happy about it, and I thank you most especially in my own name for the skilful attentions you have given her. I have been enabled to watch her, besides, on her journey for three or four days. The deviation (of the spine) amounts to nothing. The pains have vanished.”

Miss de W— returned the following year to undergo a second treatment, which completed the cure.



I find in the work by Dr L. Brachet this note.

*“ Case of Sciatic Neuralgia. Ten applications of Electricity, twelve douches, and four baths. Success.*  
—M. B—, 30 years of age, of a strong constitution and bilious temperament, had suffered for three years from an affection which had attacked the whole of the right inferior extremity. He attributes the cause of it to the camp, and the exigencies of a military life. He reached Aix the 23rd of May, 1873, after having submitted, without any result, to a painful treatment of artificial douche and vapour baths, the application of the ‘Marteau de Mayer,’ revulsives, &c. The pain continued, with some feeling of acuteness in the course of the sciatic nerve, which the invalid traced with his finger. At the level of the great trochanter and of the external malleolus, pressure caused a most acute pain. Flexion and extension of the leg were painful; walking and standing on the right foot, impossible. The pain never went away completely; sleeplessness, also, had already much enfeebled and emaciated the patient.

“We subjected M. B— to a series of douches. After the second douche, there was exacerbation of the pain. We, nevertheless, continued the same medication, alternating it with some sittings of the con-

tinued current, one pole being placed upon the origin of the sciatic, the other being applied to the corresponding muscles. This treatment lasted thirty-one days, after which the patient left cured. Since then, he has had no relapse."

After reading this note, it is true, some doubts might arise in the mind: ought the recovery to be attributed to the thermal treatment, or better, to the electricity; and what portion of the success belonged to each of these medications? Very fortunately for the waters of Aix, and Dr Brachet can bear witness with me, it is proven, by numerous observations, that sciatica, whether from cold or rheumatism,—which is especially the question here,—was cured equally as well by the thermal treatment alone, a long time before the introduction of electricity was dreamt of in thermal treatment. It is, then, to the waters of Aix alone that we must attribute the success obtained.

This leads me very naturally to say a few words about Electricity as an adjuvant to the Thermal cure. Dr L. Brachet, following in this the practice of certain hydropathic physicians, establishes, as a method, the simultaneous employment of electricity and the thermal treatment, as proved by the cases of sciatica, rheumatic arthritis, chronic general rheu-

matism, and paralysis, which he has treated at Aix by electro-thermal medication. He foresees the adverse arguments which would be directed against his method when he says :

“ We may, perhaps, be accused of confusion in the combined employment of this electro-thermal medication. We may be asked, perhaps, if our cures are due to electricity, to shampooing, to the douche, the sulphur, or to the thermality of our waters? We do not care, provided that our patients attain, if not recovery, at least relief, and if we know that the relief or recovery is instigated by this double medication without offering the risks of any fatigue. There is no need to refer to important physiological laws in order to appreciate that the application of the continued current is a happy adjuvant of the thermal medication (vapour and douche baths, shampooing).”

I have not the presumption to judge here the usefulness of a method which others will estimate with better authority. Nevertheless, I think that the natural adjuvants of the waters of Aix,—Marlioz, St Simon, Challes, ferruginous waters, &c.,—form a complete group, which fulfils in the happiest and most efficacious manner, without it being necessary to look for other auxiliaries, all the requirements

and indications of sulphurous therapeutics. Accordingly, I restrict the use of the electro-thermal treatment to those rare cases in which the physician, who sends his patient to Aix, thinks it necessary to recommend this double medication.

## CHAPTER VI

### GOUT—GOUTY SCIATICA

“THERE is no question,” says Professor Charcot, “that the admirable works on analysis and pathological histology, which have already made familiar amongst us the name of Dr Garrod, have inaugurated, for the theory of gout, the era of positive cognizances.” The discovery of an excess of uric acid in the blood of patients affected with gout has, indeed, thrown a new light upon this study. But, as it does not come within the province of this work to describe an affection of which an erudite and detailed history will be found in the treatise by Dr Garrod (3rd edition), I approach, without preamble, the principal therapeutic indications of the waters of Aix in this malady.

It is in the chronic form of this affection that the waters are beneficial, and in the œdema and stiffness which remain after the attack.

The œdema shows itself especially at the inferior extremities, but it can be observed also at the knee or the hands. "In using mechanical appliances for joints stiffened by gout," says Dr Garrod, "the cause of such rigidity should never be lost sight of, for injury may be induced by a too harsh mode of procedure; gentle means, continued over a lengthened period, are most likely to be attended with success. In such cases, the use of mineral baths, as those of Aix-la-Chapelle, Aix-les-Bains, Wiesbaden, Tœplitz, and Buxton, is often of considerable benefit, and douche baths and shampooing are especially indicated."

When the tophaceous deposits are formed, they often endeavour to eliminate themselves by ulcerating through the skin, and sometimes without causing any inflammatory trouble; in this case only, and at this last stage of their progress, as it would be, at that time, but to augment the pains, and to check the work of elimination by using astringents, local vapour baths are of material use in facilitating this elimination.

In gouty sciatica, of which further on I quote a marvellous cure by the waters of Aix, also in affections of the skin, such as prurigo, pityriasis, psoriasis, dry eczema, when connected with the

gouty diathesis—in these cases I have always seen the Aix waters effect remarkable results.

In assisting the functions of the skin by vapour and plain sulphurous baths, in utilising the douche, with shampooing and the passive movements, gouty persons are placed under favorable conditions to get rid of their articular complaints, and to avoid relapses, always to be feared. The douche is in itself a real exercise, which gives tone to the organism, and relieves its vital forces. Moderate exercise, according to Lehmann and Charcot, is one of the best means to prevent the uric diathesis.

Lastly, the efficacy of these different balneatory means is pointed out by Dr Garrod in the following lines:—"The importance of a proper attention to the skin will be at once evident, when we reflect that it is by means of this surface that much acid matter is constantly secreted, and that when the cutaneous function is suppressed, the blood becomes less alkaline, and a fit of gout may be thereby occasioned; for this reason cold often acts as an exciting cause of gout, and warmth tends to ward off the disease."

We have already seen that the sulphurous water of Challes, taken internally, is diuretic, and that it can render the urine alkaline. It stimulates also

the functions of the kidneys, which have lost, in the gouty, a great portion of their excretory power; and, in aiding the urinary secretion, it furthurs also the expulsion of a greater quantity of uric acid, which it thus prevents accumulating in the blood. Can it be asserted that the sulphurous thermal treatment, applied internally and externally, suffices alone to produce this result? We do not think so; it ought to be further aided by a special regimen. It is necessary, in a word, that invalids carefully avoid all excesses of the table. An attack of gout, which sometimes occurs during treatment, and which the invalid nearly always attributes wrongfully to the effect of the waters, is the more often due to an error of diet. The sumptuous living of the grand hotels, with the temptations, excuses these excesses, but it also exonerates the physician who prescribes a strict regimen.

When an invalid delays coming to Aix until dropsy, anæmia, and consumption, the ultimate attendants of this affection, have undermined the constitution, the waters, so powerful when the vital forces are still unexhausted, can do nothing to check the general atony, or the march of the malady.



CASE VIII.—*Passive swelling and considerable stiffness of the articulations of the ankle and of the foot, arising from a violent attack of Gout; complete recovery after a single cure at Aix.*—Mr X—, a well-known London barrister, and a Queen's Counsel, was sent to me in May, 1875, by Dr Garrod, who recommended him to me as one of his best friends. Mr X— was nearly forty-five years of age, of a strong and robust constitution. He was subject to attacks of gout (it was hereditary in his case). The last attack came on at the commencement of February, 1875, so violently that he was obliged to remain in bed for several weeks. In the course of the attack, the legs, the ankles, and the feet were puffed up and swollen, and the corresponding articulations were very stiff. He was scarcely able to walk by the aid of two sticks, and then with the greatest difficulty. There were no appreciable tophaceous deposits. After four weeks' treatment at Aix, this gentleman, who had gradually recovered the use of his limbs, could walk for three or four miles without the least fatigue. When I saw him in London in the month of April of the following year, he told me that his recovery had been perfect. He had had no pain, or the slightest attack of gout since his residence at Aix, and he had been able to enjoy,

during the autumn, many shooting partics without being exhausted. Lastly, he believed himself to be quite cured. He interrogated me as to the advisability of another season at Aix as a preventive measure: I replied that I did not deem such necessary. During my last visit to London, in February, 1877, I learnt from Dr Garrod that Mr X— had not had the slightest relapse.

The following interesting case is taken from Dr Quissac's work entitled, 'De la Goutte et des Eaux Minérales.'

*“ Notes of a case of obstinate Gouty Sciatica ; five weeks' treatment at Aix-les-Bains ; complete recovery.—*Mr —, nearly 30 years of age, of a bilious, sanguine temperament, of robust constitution, subject to an irregular gout, wearied by suffering for many days from a sharp pain in the region of the right instep, applied upon this part a nearly cold linseed-meal poultice. Some hours later, the pain in the foot had vanished, but it was succeeded by acute pain in the posterior region of the thigh, in the course of the sciatic nerve. In vain it was tried to bring back the inflammation to its primitive seat—all means failed. Leeches were applied in the track of the nerve, then flying blisters, and lastly, the

actual cautery. No progress was made. The invalid walked with much pain, supported by crutches. The pains did not cease in the track of the nerve; they were specially very sharp on movement of the limb. The saline waters of . . . were recommended. The patient went to the place, drank the waters, took the baths and the douches. No benefit accrued after a month's residence. The state of matters remained the same until the commencement of the summer of the following year. He then went to the sulphurous spa of Aix, in Savoy, a cripple walking by the aid of crutches. He there made use of the waters internally, and externally by baths and douches. A speedy amelioration showed itself, he made rapid progress, and after five weeks' treatment, threw away his crutches, and recovered the complete use of his limb. Twelve years have since elapsed, and the sciatica has not returned. Mr — is not altogether cured of the gouty diathesis, for now and again he suffers from intestinal colic, cramps of the stomach, sometimes from palpitations of the heart, with uneasiness in the region of this organ, sometimes from pains in the joints, or in the lumbar region; but these various symptoms, although very inconvenient, do not continue for many days, as they succumb speedily to well-directed remedies.

The health, with the exception of these attacks, is very good."

I could add to these notes many others not less interesting, but I must not go beyond the limits I have laid down. I will confine myself to the case of Sir Dominic Corrigan, who came to Aix in 1875 to be cured of some gouty stiffness and puffiness in the lower joints. He derived much benefit from the thermal treatment, as he affirms himself, in the following letter he wrote to me in April, 1876, when recommending to me one of his friends :

"MY DEAR Dr BERTIER,

"Give my friend, the Very Reverend the Dean . . . your best attention, and you will much oblige me. I have a great sympathy with him, for he has been a fellow-sufferer. Thanks to you, and to Aix-les-Bains, I am now quite well.

"Gratefully yours,

"D. CORRIGAN."

I deem myself happy in concluding with the opinion of Dr Garrod upon the waters of Aix in the treatment of Gout.

"In Gout the Aix treatment is found most useful in the following class of cases:

"1st. When it manifests itself in cutaneous

eruptions, especially in the form of psoriasis, or eczema, whether combined or not with joint affection.

“2nd. When there is considerable passive swelling and stiffness left after the attacks of articular gout, or in forms of gout not connected with portal congestion, and in which the influence of the other thermal indifferent waters, as those of Wildbad and Tœplitz, is usually found beneficial.

“To Dr F. Bertier, of Aix, I am indebted for much valuable information concerning the course of treatment followed at the establishment, and for many details contained in his pamphlet on the Mineral Waters of Savoy, which want of space prevents me from incorporating in the present work.”

## CHAPTER VII

### AFFECTIONS OF THE STOMACH AND THE GENITO- URINARY APPARATUS

*Dyspepsia—Blennorrhagia—Leucorrhœa—Ovaritis  
—Chronic Uterine Catarrh—Chronic Metritis—  
Fungoid Growths—Dysmenorrhœa—Sterility*

DYSPEPSIA, to speak correctly, is but one of the symptoms of a class of affections, such as rheumatism, herpetism, gout, which are almost always cured or improved at Aix. Consequently, it is understood that the thermal treatment, in acting upon the cause, also acts upon the effects which have proceeded from it.

Chronic Enteritis, and dyspepsia connected with rheumatism, are also much ameliorated by sedative and tonic modes of treatment, and by drinking the waters of Challes or Marlioz. One of the first effects of these waters consists in regulating and stimulating the digestive functions.

Chronic vesical catarrh, chronic blennorrhagia in man, and leucorrhœa in the female, are relieved by the waters of Aix and of Marlioz. "For such cases," says Professor Gubler, speaking of leucorrhœa (*loc. cit.*), "the internal employment of tonic reconstituent or alterative waters is insufficient; it is indispensably necessary to have recourse to the topical treatment of baths and injections, associated with the assistance of the ordinary irrigator, or better, by means of the speculum tube of Wickham. The indications fulfilled by these irrigations in the bath are:—1st, To perfectly cleanse the surfaces; 2nd, to allay any remains of inflammation; 3rd, to invigorate the tissues; 4th, to neutralise the acidity of the urethro-vaginal pus reaction, of which I was the first to point out the existence and to demonstrate the constancy; and 5th, to destroy the lower organisms, so abundant and so various, which multiply in this product of secretion, and play, in my opinion, the part of ferments, transforming the alkaline mucus of the uterine cavity into acid vaginal pus."

As to chronic blennorrhagia in man, I cannot do better than give here a very interesting unpublished and verbal communication from my excellent friend Dr Diday, of Lyons. Several times he has seen,

under the influence of a thermal treatment at Aix, old urethral exudations revive and pass, during or soon after the season, into a subacute or semiacute state.

This effect, interesting to study from a physiological point of view, has also its therapeutic importance. First, a revival is sometimes very useful (especially when obtained without recourse to any local means of injection or sounding) in certain cases where the blennorrhagic inflammation has, several times during its course, abandoned the urethra for the neck of the bladder and the epididymis. Then by the ordinary means—copaiba injections, &c.—the flow cannot be influenced without aggravating or reproducing either cystitis or epididymitis. And as to these two inflammatory complications, if they are treated by appropriate means, without fail there is realised, in mitigating them, a proportionate exacerbation of the flow—a real syllogistic circle—from which nature alone is able to disengage herself with security, but from which she does not always disengage herself, and never, at least, without much loss of time.

The thermal treatment of Aix, in reviving the acute element of the urethral phlegmasia, extinguishes all disposition to the return or perpetuation



of vesical or testicular inflammation. Once the irritation of the urethral inflammation is realised, it must be left to wear itself out; the which it does not take long to do.

This same effect, this prudent revival, obtained by the thermal treatment, that is to say, in the most natural manner, without the intervention of local irritants, is also the best solution to be hoped for in exudations deprived of complications. The physician who will verify such an effect from the treatment at Aix, ought to be informed, that it is of consequence to respect this mode of action, treacherous in appearance, but, in reality, in the highest degree advantageously brought forth by our *Naiade*. Its severities are never of long duration. It is necessary to suffer this returning acute stage to persist for some time, and to interfere only when after several days it has spontaneously made room for a period of positive chronicity.

Amenorrhœa, metritis, chronic catarrh of the uterine neck and fungous growths, are treated with success by the waters of Aix or Marlioz, according to the case, and chiefly when they are connected with rheumatism.

I am happy in being able to put forth here the testimony of an eminent physician of the Paris

hospitals, Dr Bernutz, as his remarkable works on the Diseases of Women place in the front rank the value of the action of mineral waters in uterine affections. He has communicated to me a most interesting note upon a case of Fungosity of the Uterus (for which M. Récamier advised the employment of the curette) occurring in a young woman, seven months after confinement, and accompanied with continual losses of blood. M. Nélaton several times cauterised these fungoid granulations, without obtaining a lasting effect. The patient was sent in succession to the ferruginous waters of Luxeuil, then to St. Sauveur (Hautes-Pyrénées) without further result. At last Dr Bernutz advised the waters of Marlioz externally, and internally in progressive doses up to a litre a day. This totally eradicated the troublesome affection. During the winter which followed the cure, the patient had a slight relapse. Dr Bernutz, thinking that the excellent results obtained before had been especially produced by the sulphur, advised her to drink the transported Eau de Challes, but it produced no amelioration. He then made her try again the water of Marlioz, which was continued for some weeks, and again her state improved in a remarkable manner. The following spring, after a residence at

Aix, her recovery was completed. She has had no relapse.

I believe I was the first to call the attention of physicians to the remarkable effects of the waters of Marlioz, taken especially *en boisson*, in cases of catarrh and of fungosities of the uterus. Since that time (1873) numerous cases of recovery have been recorded, thus confirming this remarkable property of the springs.

To conclude I will quote the following note, which is short and decisive.

A lady was sent to me by Dr Playfair, with the following letter of introduction :

“ I have asked my patient, Mrs D., to place herself under your care should occasion require. She came home from C., suffering from a very severe form of chronic uterine catarrh with anteflexion, &c.” The watchful attentions of Dr Playfair had already brought about a marked amelioration in the state of this patient. The general health, however, left much to be desired, and there was besides grave mental and physical depression. The combined action of the waters of Aix and of Marlioz had the happiest effects, and the invalid left Aix entirely cured by the treatment.

Impotence and nocturnal emissions are also suc-

cessfully treated at Aix; and many sterile women, after having been relieved by treatment of the mucous obstruction in the neck and the cavity of the uterine, have borne children. "We have besides seen these waters succeed in cases of Sterility, and especially when it appeared to depend upon a delicate and very nervous constitution" (Daquin).

According to Kuss, of Strasbourg, iodine in large doses renders the plasma of the blood more fluid; it augments the number of blood-corpuscles, accelerates the circulation, and raises the temperature; the combustions are incited, fat and the elements of new formations are destroyed in more considerable proportions, very soon the glands and various engorgements diminish and disappear. This latter action explains the means by which the waters of Challes and of Marlioz—which contain a certain quantity of iodine—employed for a long time internally and externally, subdue chronic engorgements of the ovary and of the uterine.

"Hepatitis, chronic ovaritis, engorgements of the spleen and of the uterus, have been observed to yield to the administration of the alkaline iodized waters of Coise, of Saxon, or the iodo-sulphurized waters of Challes, and of Krankenheil. The employment of waters of this class appears to us especially indi-

cated when the engorgement, of which there is question, leagues itself to a lymphatic temperament, or when the patient presents the signs of the scrofulous diathesis" (*Traité Général Pratique des Eaux Minérales de France et de l'Étranger.* Par MM. Petrequin et Socquet).

Iodine is besides aphrodisiac; moreover it excites and increases the catamenia, and hence the success of the waters of Challes and of Marlioz in amenorrhœa and dysmenorrhœa. We hasten to add that they must be employed when the active congestion of the uterus has given place to a state of atony and chronic engorgement.

"When women are of a ruddy complexion, and the catamenia a little free, and at the same time painful, iodine, it is true, increases the flow of blood, but it augments simultaneously the intensity of the pains" (*Traité de Thérapeutique.* Par Trousseau et Pidoux). In this case I think, with Dr Martin Damourette, we should prescribe the alkaline waters, and reserve the iodo-sulphuretted for lymphatic, scrofulous women, in whom there are no signs of irritation.

## CHAPTER VIII

### GENERAL AFFECTIONS. DIATHESIS

*Chlorosis.—Anæmia.—Debility.—Scrofula.—  
Syphilis.—Cutaneous Diseases*

I HAVE already spoken of the excellent results obtained in Chlorosis by the stimulant medication. I would add that Anæmia, and Paludal câchexia, are combated with the same advantages by the same means. We must, in order to rouse the organism from its torpor, excite it briskly by the douche and the vapour bath, then afterwards pass to a tonic treatment.

“The mineral water of Marlioz, by reason of the iron and manganese it contains, appears to us most especially invoked to contend against intermittent fevers with the cachectic state, in powerfully favouring the regeneration of the blood-corpuscles” (Petrequin et Socquet, *op. cit.*).

The waters of Aix by themselves would be almost

useless against the different manifestations of Scrofula, but combined with the iodized springs of Marlioz and of Challes, they give very satisfactory results. This is the opinion of MM. Petrequin and Socquet: "We praise them highly (and we have ourselves derived good effects from them) in scrofula, goitre, skin affections—as the itch, ringworm, scald head—in scrofulous ulcers, mercurial salivation, larval or degenerated syphilis, tertiary syphilis, scurvy, caries, ozæna, scrofulous ophthalmia, pulmonary catarrh, leucorrhœa."

The herpetic eruptions which affect the lymphatic or scrofulous temperament, the different affections of the skin in the gouty and rheumatic, certain cases of obstinate cutaneous diseases—lichen, psoriasis inveterata for example—which cannot be cured without sensibly exciting them, are much relieved at Aix by the stimulant medication.

CASE IX.—*Chronic Eczema of the legs in a gouty person, quickly relieved by the thermal treatment.*—In July, 1875, Mrs H— came to Aix to consult me by the advice of her physician, Dr Tilbury Fox, who wrote me the following letter :

"My patient, Mrs H—, has suffered from Eczema, and is a semi-gouty subject. She needs a mild

course of sulphur waters, and a change of air, which I think Aix-les-Bains can afford. She will not bear any very depressing treatment. Will you therefore put her through a mild course of waters?"

Mrs H— had, on her arrival at Aix, an eczema occupying a certain portion of the anterior aspect of both legs. The able treatment carried out by Dr Tilbury Fox had already much benefited her. The eczema disappeared completely after a residence at Aix, and the general health improved. Mrs H— revisited Aix the following autumn—September, 1876—for a second season. She told me that she found herself so much better for the treatment at Aix, that she had had no further need to consult her physician in London; but that lately the malady having threatened to recommence, she had decided to come to Aix without delay to obtain a permanent cure.

I will admit that the treatment at Aix has each time caused, at the commencement, a slight exacerbation of the symptoms; these, however, have subsided little by little, giving place to a remarkable amendment.

CASE X.—*Psoriasis, much improved by the thermal treatment, and drinking the Eau de Challes.*—In



June, 1875, Mrs S—, a very rheumatic lady about 35 years of age, was introduced to me by Dr Garrod. According to my advice, she followed out the external thermal treatment, conjointly with the internal use of the sulphur water, for a psoriasis guttata very widespread, occupying all the lower part of the back. Some months after the departure of Mrs S— I had the pleasure of receiving from her the following letter, which shows again the utility of employing simultaneously the waters of Aix and those of Challes in certain obstinate cases.

“As you so kindly expressed a wish to hear from me some time after my return home, I have great pleasure in telling you that my treatment at Aix-les-Bains has proved most beneficial to my health. In accordance with your good advice, I have taken the “Challes” water after a month’s rest, a dose of five ounces twice a day, twelve bottles altogether, and certainly the ‘psoriasis,’ which perhaps you remember lingered on my back, has nearly disappeared, and no fresh spots have broken out. I feel most grateful to you and Dr Garrod for your kind attention and good advice.”

“The application of thermal waters to the treatment of Syphilis,” says M. Durand Fardel, “is a point upon which the greatest harmony appears to

exist amongst observers, at least with almost very trifling objection" (op. cit., p. 704).

In the first and second stage of constitutional syphilis, the waters of Aix themselves operate neither upon the lesion nor upon the diathesis, but they produce in those who make use of them a very great tolerance for mercury. They favour the elimination of this medicament by the skin, prevent its accumulation in the different organs, and protect the patient lastly from salivation, and the other accidents mercury can originate.

"A very important fact," says M. Constantin Jaus, "upon which Fontan has justly insisted, is the complete harmlessness of mercury upon the buccal mucous membrane, when it is given even in considerable doses conjointly with sulphurous water. We do not know to what cause to attribute this effect. Shall we say that the mercury combines with the sulphur to form an insoluble sulphur, and in consequence becomes inert in our organs? Or contrariwise, must we admit that the metal escapes and vaporises itself with the perspiration produced by the elevated temperature of the douches and baths?" ('Guide Pratique aux Principales Eaux Minérales de France,' &c. Par le Dr Constantin Janus, 1851).

In this affection it is very necessary to assist the cutaneous functions. In reality, patients whose skins act well, those who live in warm countries, or who follow a course at a sulphurous thermal station, better support mercurial preparations, and recover more easily from syphilis than individuals placed under opposite conditions. We know it is difficult to make labourers, engaged in sewer work, follow a complete mercurial treatment; their occupation, necessitating their living continually in damp places, renders them very subject to colds, and the mercury being imperfectly eliminated by the skin, very soon saturates their organisms, and produces the disorders of which all are cognisant.

In the tertiary stage, and in mercurial cachexia, the water of Challes, which is rich in iodide of potassium, can be combined with great advantage with the tonic balneatory treatment.

My excellent friend Dr L. Blanc, in a remarkable study upon the action of sulphur in the treatment of syphilis, has demonstrated:—1st. That Sulphur provokes the elimination of Mercury by the skin. 2nd. That it opposes its accumulation in the organism, and gets rid of the accidents which result from it, such as diarrhoea, stomatitis, and the mercurial cachexia.

Lastly, I quote the terms in which Professor Gubler describes another important property of the waters of Aix. "When there is a doubt about the signification of certain symptoms which might be attributed to syphilis; or better, when, in the absence of all manifestation, there is notwithstanding reason to think that the specific cause has not exhausted its noxious action, certain stimulating mineral waters can be applied to as a kind of touchstone, in order to provoke an eruptive poussée, in the train of which will persist some characteristic lesions permitting the determining, in full knowledge of the cause, of an appropriate treatment. This trial test is most usually assigned to the spas of Aix (Savoy), and Luchon."

CASE XI.—*Constitutional Syphilis successfully treated without mercury, by tonics and a course of douche baths at Aix.*—In June, 1873, Mr R—, aged 45 years, called on me with the following letter of introduction from Dr Diday, of Lyons:

"The patient who conveys to you this note has been afflicted for some time with a syphilis, happily tolerably benign, attended to the present without the specific. He trusts, and I also, for a radical cure by simple means: those half tonic, half

modificative of the cutaneous circulation as you direct at Aix, are well indicated. Make good use of them, I pray you, in the interest of this esteemed patient, who has besides a taint of anæmia, and of syphilophobia. The Douches Écossaises are of the number of agents I hope to see you approve of in this case; but I leave to your judgment what you believe should be prescribed after having seen, studied, and proved this organism."

Mr R— was greatly strengthened by the treatment at Aix; no eruption was produced on the skin, he has had no relapse.

CASE XII.—*Tertiary Syphilis—general feebleness; great improvement by the thermal treatment.*—Mr X—, aged 55 years, came to consult me in July, 1876, and brought me the following letter from Mr Alfred Cooper:

"Allow me to introduce to you a great friend of mine, Mr X—, who will place himself under your care. He has been suffering from rupial sores on the head, with lupus of nose, which I have stopped for him, &c."

The treatment prescribed by Mr Alfred Cooper had already much improved the head lesions, but there remained still very sensible traces of them.

There was besides in this patient a state of general feebleness of the whole organism. The thermal treatment in imparting a fresh vigour to the constitution eradicated what remained of the syphilitic affection. In quitting Aix Mr B— told me that he seemed to have become ten years younger.

## CHAPTER IX

### AFFECTIONS OF THE NERVOUS SYSTEM

*Paralysis.—Hemiplegia.—Spinal, Diphtheritic, and Typhoid Paralysis.—Locomotor Ataxy.—Paralysis from Pressure.—Hysterical, Anæmic or Chlorotic, Mercurial, and Facial Paralysis.—Paralysis Agitans.—Chorea.—Glosso-pharyngo-laryngeal Paralysis*

PARALYSIS can be divided into two great classes. 1st, Organic paralysis, in which there exists a lesion, or some alteration in the substance of the nerve; 2nd, Inorganic paralysis, or *sine materiâ*, in which, on the contrary, no trace of alteration is found in the nerve tissue.

I. To the first division belong *Peripheral Paralysis* due to any compression, and *Cerebral Paralysis*.

1st. It includes *Hemiplegia* or *Cerebral Apoplexy*, for which the thermal treatment has so much the more chance of succeeding as, in the first three weeks, there be no appearance of muscular contrac-

tion, and the sulphurous treatment be commenced at an early period of the accident, that is to say, immediately after the cessation of the febrile movement, "when the malady has entered into a formal way of resolution." (Durant Fardel, *op. cit.*)

The treatment by the waters of Aix powerfully aids nature in the work of absorption or reparation. My father has besides remarked in his long practice, that far from inducing a fresh hæmorrhage, the thermal cure seems, on the contrary, to remove the chances of it by facilitating the vascular circulation and the action of all the organs.

2nd. Apoplexy of the spinal marrow, and Spinal Paralysis in children. Patients affected with these diseases should commence the treatment as soon as possible, for there is never a fear of relapse.

3rd. *Tabes Dorsalis*, so often caused by sexual excess, the abuse of wine and tobacco, demand the soothing and tonic method of treatment.

4th. Diphtheritic Paralysis and Typhoid Paralysis, which especially attack the posterior muscles of the thigh and leg, and the extensors of the fingers, demand the stimulant treatment, that is to say, the douche and vapour bath, shampooing, with the employment of passive movement. This treatment often prevents the fatty degeneration of the affected



muscles, and advantageously supersedes the exhibition of strychnine, too often given without effect.

5th. Sometimes, also, Locomotor Ataxy at its onset in the purely nervous stage with simple molecular change, has been cured at Aix. Dr Alfred Hudson, of Dublin, related to me, on my recent visit to Ireland, the interesting history of a patient attacked with Locomotor Ataxy, to which he was called in consultation a few years ago. In questioning the invalid, he ascertained the fact of some very distinct rheumatismal antecedents, and advised a trial of the waters of Aix-les-Bains. The recovery was radical and complete after some weeks of treatment. It will hence be advantageous to have recourse to the waters of Aix in analogous cases.

6th. Lastly, according to Dr J. Braun, "In Paralysis from Pressure, in consequence of scrofulous or syphilitic vertebral enlargements, and gouty exudations, the treatment of such cases cannot be restricted to attending only to the causal indication, because the paralysis in itself is an urgent symptom, which, if possible, demands alleviation. Strong courses of warm baths are the principal remedy." 'On the Curative Effects of Baths and Waters.' By Julius Brauu. Translated, with Notes, by Hermann Webber. P. 163.

Speaking of Organic and Central Paralyses, Professor Gubler writes, "All that we dare hope is to rouse the cutaneous sensibility, to restore the periphery, to increase the capillary circulation, to aid nutrition, and to reanimate muscular contractility; mineral waters, no more than other therapeutic agents, have no direct influence over the medullary or cerebral lesions. The hydriatic cure is then only a simple palliative, serving to retard the atrophy of the paralysed members, and also to ensure the more rapid return of their motor functions, when the neural cicatrix shall have formed."

II. The Paralysis of the second class — *sine materiâ*—is much more efficaciously treated at Aix than the last named. The stimulant or soothing method, applied according to the degree of the patient's nervous excitability, gives excellent results in Hysterical Paralysis, which sometimes affects a limb, sometimes a group of muscles. This affection is nearly always accompanied by tonic muscular contractions, which, in this case, do not interfere with the recovery, and are not attended with the same dangers as in hemiplegia.

Anæmic or Chlorotic Paralysis; Paralyses which follow grave acute maladies, nervous exhaustion; Reflex Paralyses, those which are due to any shock,

or to fright, not having produced organic disorders in the nervous tissues; lastly, the sudden paralysis of a group of muscles produced by the action of cold upon a nerve, often disappear very rapidly by means of the stimulant treatment of the waters of Aix.

I will name, also, the paralyses caused by Metallic poisoning, saturnine poisoning for example, in which the thermal treatment easily combats the muscular retractions, and the other usual accidents.

In concluding the subject of those nervous affections which derive great benefit from the waters of Aix, I would mention Facial Paralysis from cold, said to be from rheumatism, from compression of the facial nerve in the Fallopiian canal, from simple congestive tumefaction of the neurilemma, and that which follows from lying on the ground, or against a damp wall, or in a railway journey with the windows open; Lastly, Paralysis Agitans at the onset, Chorea, Facial Neuralgia (*tic douloureux*), the origins of which are sometimes rheumatismal.

As aiding the thermal cure, I believe it is judicious to advise the patient, after quitting Aix, to have a special tonic treatment at Spa, Kissingen, or St Moritz. The pure air of this last place and its chalybeate water should gain for it the preference.

CASE XIII.—*Hemiplegia following Cerebral Hæmorrhage, Glosso-pharyngo-laryngeal Paralysis; marked improvement.*—A friend, Dr Emile Leriche, a distinguished surgeon at Maçon, sent me in July, 1874, the letter further on, recommending me one of his patients. Mr P—, aged forty-five years, had hemiplegia of the whole of one side of the body. He could not take a step without assistance; he spoke with the greatest difficulty; the saliva escaped, despite his efforts, from the mouth; lastly, he presented the characteristic symptoms of glosso-pharyngo-laryngeal paralysis.

“I send you Mr P— a Parisian merchant, in whom the events of the war brought on cerebral hæmorrhage and hemiplegia, which have been treated by several physicians, amongst them by Professor Ascnfeld. When I commenced to see him in October last, a seton, which had been inserted into the neck for a long time, had produced a grave adenitic suppuration, which compelled me to abolish the issue. I have not had to repent of this; on the contrary, after a month's treatment, Mr P— became much better, and in March motility had very notably progressed upon the previous state, when, at the commencement of April, a cold displayed the misfortunes of glosso-

pharyngo-laryngeal paralysis, which have painfully reacted upon the general condition. The patient has been very long in recovering. Happily there has been marked improvement for the last six weeks, and as the thermal treatment has not yet been tried, I believe that there will be much to be gained by the waters of Aix. I direct him to you for this, and I look forward to your report on the return of my patient."

After four weeks' treatment by the douche, and an appropriate shampooing, the invalid could walk alone into his room; his strength was doubled; he spoke much more clearly; finally sensibility and movement gradually returned in the paralysed limbs. Dr Leriche, delighted with the results obtained by the first treatment, again sent the invalid to Aix the following year, when still more permanent relief was obtained.

## CHAPTER X

### AFFECTIONS OF THE RESPIRATORY APPARATUS

*Chronic Catarrh,—Bronchitic, Laryngeal, Nasal.—  
Follicular Pharyngitis.—Pulmonary Phthisis.—  
Asthma*

THE waters of Marlioz and Aix, taken internally, or by inhalations, spray, pulverised douche, or atomised inhalations, yield very satisfactory results in clergyman's sore-throat, or follicular disease of the pharyngeal membrane, whether it be dry or granular; especially when it has not invaded the larynx and the vocal cords. Catarrh and inflammation of the pharynx, of the larynx, and of the nasal passages, after topical treatment has removed the acute stage, are treated with success by the same means.

They succeed, besides, in atony and feebleness of the mucous membrane of the pharynx, larynx, and bronchial tubes, "when," says Dr Charles Fauvel, "the membrane is soft, tomentous and varicose—in

that state to which the Germans have given the name of 'venosity.'"

They are also potent in reducing the size of soft and swollen tonsils in infants. According to Dr Charles Fauvel who follows, in these cases, the practice of his late teacher, Dr Blache, the sulphur cure should always be prescribed before consenting to operate on these glands gorged with blood, the ablation of which is often full of danger.

These different affections are especially amenable to the treatment of the waters of Marlioz, but the inhalation and pulverization rooms of Aix, of natural lukewarm water, have likewise their efficacy in some definite cases.

The internal treatment by the water of Challes, and the external stimulant, or the soothing and tonic treatment, according to the case, should be employed concurrently when the affections of the respiratory apparatus are related to a lymphatic or debilitated temperament, or are connected with rheumatism. Such are, rheumatic coryza, which often produces a kind of eczema or impetigo pilaris of the upper lip; chronic retro-pharyngeal granulations, sometimes called "herpetiques," but which are more often under the influence of rheumatism; lastly, some laryngeal alterations produced by the

same cause, rheumatic asthma, chronic and rheumatic bronchitis, &c. The judgment of the physician, his tact and experience, will be sure guides in the employment of a medication, which is the more effectual as it is the more complete.

CASE XIV. *Chronic Congestion and Thickening of the Nasal Passage, &c ; great improvement after the Thermal Treatment.*—Mr G— came to consult me in September, 1874, by the advice of Dr Morell Mackenzie, from whose letter of introduction I extract the following :—“ I have recommended Mr. G— to place himself under your care whilst at Aix. He is suffering from thickness of the mucous membrane of the nares and congestion, and does not think that he has received much benefit from treatment. His nares and nasal sinuses are naturally very narrow, and hence his case has proved tedious. I have every confidence, however, that the excellent waters of Aix, taken under your judicious supervision, will bring about a healthy condition. . . . I think Mr G— should take the waters at Marlioz. . . .”

This patient, after fifteen days' treatment, experienced such great relief, that he wrote to one of his friends, the Editor of the 'Porcupine' newspaper,



of Liverpool, a long and interesting letter about Aix. The following is a part of it:—"One day I take a hot douche, sitting upon a stool, while two of the bathmen rub me as they do in Turkish baths. All this time two hoses are playing upon me with great force, just as if the water came from a 'Clint' fire-engine. I then go and stand on the opposite side of the chamber, and catch hold of an iron bar; for, if you do not do this, you would be dashed against the wall. On the following day I go to the Marlioz baths and sit in a room where the water plays like a fountain, inhaling the fumes for about three quarters of an hour. After that I go into another room, and have a spray douche for my throat and nostrils. I also drink several of the waters, none of which are very disagreeable. I have only been here about a fortnight, and yet I find both my throat and nostrils much relieved. I can now breathe with tolerable comfort, and the discharges of phlegm, &c., which were so distressing, are now comparatively slight and natural. . . ."

In this patient the functions of the skin were out of order; there was besides a taint of rheumatism. These reasons decided me to have recourse both to the douches of Aix and the waters of Marlioz in

interual and topical application. The result was very satisfactory.

CASE XV. *Sebaceous Acne about the External parts of the nose; Chronic Congestion of the Internal parts of the Nares; much improved by treatment.*—In June, 1875, Dr Garrod recommended to me the Honorable X— in the following letter :

“I beg to introduce the Honorable X—. He has some skin affection about the nose, a redness, &c. I hope the waters and baths at Aix-les-Bains may prove of value. He is very anxious to get rid of it. He is going to St Moritz afterwards, and then to the Rhine, Belgium, and Holland. His general health is good, but he is very tall, and not very strong. . . .”

This gentleman, nearly twenty-two years of age, had been afflicted for a long time with an intense sebaceous acne, limited to the alæ of the nose, forming a persistent greasy surface. The interior of the nose was congested, and the secretion very abundant; the redness extended to the pharynx. The treatment consisted of general lukewarm douches to give tone to the system, and in local treatment of sulphurous irrigation of the nostrils, and external pulverization. The Eau de Challes

was given internally. The improvement was very marked after this double treatment. In 1876 the Honorable X— revisited Aix to perfect the recovery. The sebaceous secretion was much diminished, the congestion of the nose scarcely manifest. At his departure this time there was further obvious improvement.

CASE XVI.—*Pharyngeal Catarrh complicated with Chronic Spasmodic Contraction of the Œsophagus, continuing for five years ; recovery after one course of the waters of Aix.*—A very interesting case was sent to me in August, 1876, by Dr. Charles Fauvel, who wrote me the following letter :

“I very specially recommend to you one of my old patients, Mr G—, Attaché to the Minister of Agriculture and Commerce, afflicted with pharyngeal catarrh, and chronic spasmodic contraction of the œsophagus. I beg you to subject Mr G— to the Eau de Challes en boisson, the bains and douches of Aix, and the inhalations of Marlioz.”

After having followed out for twenty-five days this treatment, to which I further added gargling with the Eau d’Alun, this invalid left greatly improved. His general health, very debilitated, was

sensibly strengthened; the catarrh had almost ceased; and the chronic spasmodic contraction, which had continued for five years, producing frequent and troublesome vomiting and regurgitation, appeared to have lessened in severity. Dr Charles Fauvel told me, the following January, that his patient had called, two months after his treatment at Aix, to tell him of the complete recovery from the catarrh and the œsophageal spasm of which he had complained.

CASE XVII.—*Chronic Congestion, with loss of power of the Vocal Cords; marvellous cure by two courses of Aix-les-Bains waters.*—Mr Lennox Browne, in August, 1873, directed Capt. H— to me with the following letter:

“I shall be obliged by your giving your very best attention to my friend and patient Capt. H—, who by my advice comes to Aix, and will afterwards go on to St Moritz. He has had congestion, with loss of power of the vocal cords, especially of the left, the result, I believe, of straining the voice from a wrongly taught method of singing. He has also a very sluggish liver; I should like him to have a spray inhalation of the waters of Marlioz, to drink the same, and to bathe either there or at Aix,

as you may wisely think best, but the bathing in moderation . . . .”

When I examined Capt. H— with the laryngoscope, I found some chronic congestion of the larynx, with atony of the mucous membrane, and feebleness of the vocal cords. The strict treatment followed brought about the best results, and the recovery was complete after a second residence at Aix the following year. Since then the voice has gained in force and volume, and Capt. H— can sing for a length of time without experiencing fatigue.

CASE XVIII.—*Follicular Disease of the Throat; much improved by treatment.*—In June, 1876, I received the following letter from an English confrère.

“Drs Quain and G. D. Pollock, of London, have recommended me to place my daughter under your care for a few weeks. She has been suffering for some months from follicular disease of the throat.”

This young lady derived much benefit from the waters of Aix.

A well-known actress of the Opera Comique, of Paris, Miss D—, of a nervous temperament, had almost completely lost her voice. She regained the

use of it after a course of the waters of Aix. Nearly every year she repairs to Aix to strengthen the respiratory mucous membrane, and to add tonicities to the vocal cords.

Miss P. R—, the marvellous interpreter, in London, of the works of Offenbach, was obliged last year to abandon the stage on account of an “obstinate congestion of the mucous membrane of the posterior nares” which affected her voice in the middle notes. She has written me that she is much better, and that she will be able to resume her engagements again, thanks to the efficacy of the treatment she followed, under my direction, at Aix.

I could furnish numerous examples of throat affections relieved by the waters of Marlioz and Aix, especially cases of clergymen, orators, and professional singers, in whom marvellous cures have been effected. It is very important that a thorough laryngoscopic examination be made of patients who resort to the waters of Aix for affections of the throat, if they do not bring a precise diagnosis from their physician. I have seen some injurious mistakes committed in treatment by neglecting this rule. Among other examples, I will quote the case of a patient whose physician made him submit every day to the spray inhalations at Marlioz, for a sup-

posed chronic laryngitis, which proved to be a polypus of the vocal cords. As the hoarseness of the voice was increased by this untimely treatment, the patient came begging me to examine him with the laryngoscope. I discovered a polypus of the right vocal cord, accompanied with congestion of the larynx. A few local applications of a solution of perchloride of iron mitigated the inflammation. Having accustomed the patient to the passage of instruments, I had the pleasure of seeing the extraction of the polypus skilfully effected at one sitting by Dr Morell Mackenzie. The treatment of Aix or Marlioz employed in cases of polypus, whatever may be their nature or situation, can only increase the evil by aggravating the symptoms.

In laryngoscopic examination I use the frontal reflector. It requires, it is true, longer practice for its management, but experience has convinced me of the superiority of this mode of examination.

When discussing the soothing action of the waters of Aix and Marlioz, I pointed out the fact that a class of asthmatics derived great benefit from the use of the sulphurous inhalation, cold or lukewarm. I would now remark on the action of these waters in Pulmonary Phthisis.

Daquin and Socquet, at the commencement of this

century, called the attention of physicians to the effects of the waters of Aix in Phthisis. "They succeed" says Daquin, "in recent Tubercular Phthisis, which is not yet accompanied with fever: also, it is noted, that the inhabitants of Aix rarely become asthmatical, and very few die from pulmonary consumption; they have prompt recourse to the drinking of these waters in the most trifling colds, and for the slightest affection whatever of the chest" (op. cit.) Such was also the opinion of M. Charles Despine, "It is from this principle of their action in catarrh," says he, "that in some way may be accounted the almost constant success which has followed the use of the sulphurous waters, internally and externally, in pulmonary phthisis."

These qualities were lost sight of until 1853, when my father published the résumé of his observations upon this important subject. I may be permitted to reproduce some passages of his interesting pamphlet, where he describes the good effects of the waters of Aix in, what he calls, the period of predisposition to consumption.

"It is the state to which so many young subjects from ten to twenty years of age appertain, pale, thin, emaciated, with soft skins; having a narrow chest, embarrassed in respiration after the slightest



fatigue ; subject to frequent epistaxis, to insomnia ; sometimes presenting the appearance of health, but with a very pronounced lymphatic temperament. It is undoubted, and all authors who have interested themselves in this question acknowledge, that for these organisms, the use of the waters of Aix will produce the happiest results. In fact, the baths, the piscines, the gentle douches even, combined with a tonic regime, increase the activity of the digestive, respiratory, and cutaneous functions : by these means the lymphatic temperament is contended against, strength and vigour restored to the constitution, and the patient defended from the attacks of consumption.” (‘ Remarques sur l’Action des Eaux d’ Aix dans la Phthisie Pulmonaire,’ par le Dr L. Bertier, 1853).

It is the soothing and tonic medication which exclusively succeeds in the treatment of Consumption. Now, the springs of Aix and Marlioz ably combined, as we have seen, leave nothing to be desired in the employment of this method of treatment.

In order to conclude more authoritatively, I deem it useful to recall here the words of Professor Gubler, whose work, ‘ Du Traitement Hydriatique des Maladies Chroniques,’ assigns scientific grounds for balneotherapy.

After having laid down the principal indications—1st, of Tuberculosis, rather suspected than demonstrated; 2nd, of the Pulmonary affection, well characterised, the author thus proceeds:

“Thirdly, the signs of the Tubercular affection are unmistakable, but the pulmonary lesions progress slowly without awakening much reaction; to this chronic form, ordinarily accompanied with a bronchitic catarrh more or less considerable, the sulphurous waters, generally recommended, are suitable.

“Nevertheless, the sulphurized sodic or calcic waters are not absolutely excluded from the treatment of subjects who have had some spitting of blood, or who, besides, have a tendency at times to a slight movement of evening fever; it is only necessary, in these cases, to administer them with caution, and to set aside, by a methodic employment, their stimulating effects. Without doubt, as has been well demonstrated by my erudite friend M. Pidoux, a slight artificial hæmorrhage, is nothing so terrible, yet it is preferable to avoid it. This will be effected nearly always by administering small doses of the waters to the exclusion of the baths, and by keeping the patient also from the congestive action of a high thermality of the waters, and from an exalted tem-

perature in the salles d'inhalations. If despite these precautions, a hæmorrhagic inflammation supervenes, the hydriatic cure itself should not be accused of it, but rather accessory circumstances, such as fatigue of the voyage, or canicular warmth, or better still, suppression of a menstrual epoch. Borden was profoundly convinced of this innocuousness of the sulphurous waters, rightly administered, seeing that he used to call them "the sweetest of all bechics": and we think that they only impart all their therapeutic effects on condition of meriting the title which has been conferred on them by the celebrated hydrologic physician. The rôle of the substitutional agent attributed to the waters, sulphurous, sodic, or calcic, appears to me very limited, and I think that it is upon their action alterative, metatrophic, or metamorphic, that the chief reliance should be placed. Now this intimate parenchymatous action will be accomplished so much the better as the medicinal water, creating no opposition, penetrates the more easily into the plasma and the organic woof.

Then all the therapeutic results will be so much the more guaranteed as the integration of the molecules of sulphur shall have been more completely effected.

Besides, whatever may be the physiological process by the aid of which the sulphurous waters improve the morbid state of the tuberculous, their efficacy is incontestable, and the experience of ages, every day confirmed, justifies the favour which they enjoy with the public, and physicians themselves."

## CHAPTER XI

### SURGICAL AFFECTIONS

*Fractures.—Stiffness of Tendons.—Sprains.—Caries.  
—Pseudo-ankylosis.—Wounds by Firearms.—  
Diseases of the Eye*

“THE stimulant sulphurous, and chlorinated sodic waters are beneficial,” says Professor Gubler, “in resolving inflammatory engorgements, from which arise ankylosis, white swellings, and other lesions which belong to the external pathology. It does not matter whether these lesions be of diathetic origin, or due to internal causes, or whether they originate from external violence, such as blows, wounds, and other traumatisms ; all are opportunely modified by the waters of Aix, Grévolx, Ax, Luchon, Baréges, or those of Salins (Savoy), Salins (Jura), Salies, &c.” (loc. cit.).

When after a fracture, the formation of the callus is retarded by an intercurrent affection, or by

the imperfect vitality of the whole constitution, the thermal treatment singularly aids the work of repair. I have recently had under my care a young patient, in whom syphilis had prevented, for several months, consolidation of the fractured bone. The cure at Aix favoured in a remarkable manner the desired deposition of the bony elements.

The sequelæ of fractures, such as passive swelling, articular stiffness, pseudo-ankylosis, &c., have an effectual remedy at Aix. The tendinous contractions which follow acute, severe, and chronic affections, typhoid fever for example, are admirably treated by the stimulant method—the vapour and douche baths with shampooing and passive movements.

The pain, swelling, and stiffness which seem to persist sometimes in the joints, as sequelæ of a sprain, vanish on submitting the affected part to the action of the local vapour or douche bath.

The stimulating qualities of our waters are also serviceable when the question is, How to obtain an eliminative inflammation, to give passage, maybe, to a sequestrum or a foreign body?

In wounds by firearms and burns they also furnish conspicuous results, as proved by the observations of Drs Davat, Vidal, Guillard père,

Brachet, and Blanc, published during the disastrous war of 1870.

A learned hydrologist, the late Dr Petrequin, whose remarkable works are justly appreciated, was the first who sought to open a new path for a thermal medication in Diseases of the Eye ('*De l'Action des Eaux d'Aix dans les Maladies des Yeux,*' par Petrequin, 1852). I could quote some cases of iritis, conjunctivitis, and sclerotitis, of a gouty or rheumatic origin, which would fully demonstrate the beneficial action of the waters of Aix in these affections.

In nearly all the notes of cases published in this handbook, improvement began after the first douches, and recovery followed a single course of treatment. That this will be the absolute rule must not be taken for granted. In fact, it occurs very frequently that invalids are not relieved during the time they follow the thermal treatment. It is often some weeks, or even some months, after having undergone it that improvement is felt.

In many cases, it is necessary to return two or three successive years to Aix to obtain a complete recovery. "Sometimes," says Dr Maximin Legrand, "the sulphurous thermal stimulation continues after the time occupied by the bathing

process. The perspirations repeat themselves in certain invalids with a kind of periodicity at the hours of the vapour and douche bath. It is only when these phenomena cease recovery is effected."



## APPENDIX

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### *Natural Adjuvants to the Waters of Aix*

#### 1. MARLIOZ

THE springs of Marlioz are highly charged with sulphur and soda, and slightly with iodine and bromine.

The park at Marlioz, in the centre of which is built the Establishment of that name, is connected with Aix by a beautiful avenue three quarters of a mile long, having a footpath and a row of high trees on either side.

Marlioz is private property, and the enterprising owner of this establishment, Mr Mottet, has in every way studied the comfort, amusement, and refinements of his visitors.

The Establishment is situate on the south side of Aix, at the same altitude, 850 feet, and enjoys the

like advantages of climate. From this point of view, the station is much preferable to that of Allevard, which is 1640 feet above the level of the sea, and subject, besides, to very great variations of temperature, unfavorable to patients with delicate lungs or weak chests. On the other hand, the degree of mineralization, the locality, the site itself, give the Establishment undoubted superiority over that of Allevard. "Invalids who intend to pass a season at Allevard should provide themselves with light clothing for the excessive heat of the middle of the day, and with warm and thick clothes for the evenings and mornings, when the temperature falls suddenly several degrees. It is one of those peculiar French stations to which we must not go too early, or leave too late." ('Des Principales Eaux Minérales de l'Europe.' Rotureau.)

Three springs arise in the park at Marlioz, and although they present the same chemical composition, they each have a different name. There is the Bonjeau Spring, the Spring of *Æsculapius*, and the Adelaide Spring.

According to MM. Petrequin and Bonjean, they mark  $24^{\circ}$  to  $30^{\circ}$  by the sulphydrometer ('De l'Action des Eaux Minérales d'Aix,' par M. Petrequin, 1852). Their temperature is about  $14^{\circ}$  C.

(57° Fahr.), and the total out-turn about fourteen hundred gallons a day.

A chemical analysis of the waters of Marlioz has been made by Mr J. Bonjean. It is as follows :

## ANALYSIS OF THE WATER OF MARLIOZ

TEMPERATURE, 57° FAHR

In 1000 grains of water—

Sulphuretted hydrogen	.	.	6.70	grs.
Carbonic acid	.	.	4.64	„
<hr/>				
Iodine	.	.	0.0001944	gr.
Bromine	.	.	0.0000515	„
Sulphide of sodium	.	.	0.067	„
Sulphate of soda	.	.	0.025	„
„ of lime	.	.	0.002	„
„ of magnesia	.	.	0.018	„
Chloride of sodium	.	.	0.018	„
„ of magnesium	.	.	0.014	„
Carbonate of lime	.	.	0.186	„
„ of magnesia	.	.	0.012	„
„ of soda	.	.	0.040	„
Silex	.	.	0.006	„
Carbonate of iron	.	.	0.013	„
„ of manganese	.	.	0.001	„
Sulphate of iron	.	.	0.007	„
Glairine	.	.	indeterminate quantity	
Loss	.	.	0.017	„
<hr/>				
Total	.	.	0.426	„

The waters of Marlioz are feebly bromo-iodide,

but strongly sulphurised (more than the springs of the Pyrenees). They contain some iron and manganese, and are, besides, slightly alkaline.

The Establishment at Marlioz possesses—

A very fine Pump Room.

Two large inhalation rooms.

Nine private rooms for baths.

A cold douche.

Two douches ascendantes.

Two complete apparatus for atomised and spray inhalation.

Four douches de siège et ascendantes.

In speaking of the therapeutic indications of the waters of Aix (consult, besides, ‘Medical Guide to the Waters of Marlioz,’ by Dr Macé), I have set forth, every time the opportunity has presented itself, the importance of the waters of Marlioz either alone, or combined with the thermal treatment of the former. I will not then revert to the subject, but will only add that the waters of Marlioz are specially successful in affections of the respiratory passages, and in uterine diseases, whenever atony or feebleness of the mucous membrane has to be treated.

## 2. CHALLES

“THE cold springs of Challes contain iodine and bromine, and are highly mineralised with sulphide of sodium.

“The springs of Challes are situate about three miles from Chambéry. They were discovered in 1841, by Dr Domenget. They issue from the fissures of a cleft rock veined with bands of carbonated and crystallised calx.

“This mineral station is situate in an expansive and beautiful valley. From the terrace of the château, which overlooks the springs, the view extends along the chain of the Dauphine Alps, their summits, covered with the eternal snows, present a magnificent spectacle, equal to that of the Bernaise Alps seen from Le Gensly, at Berne.

“There are three springs: the large spring, the small spring, and the Spring du Puits.

“The first is only strongly mineralised, the two others are less so, and have not, besides, been analysed. It is only then the first which will be considered in this work.

“The temperature is about 12° C. (53° Fahr.).

“The Establishment of Challes is situate about 935 feet above the level of the sea. The mean temperature

of the months during the season is  $22^{\circ}$  C. ( $71^{\circ}$  F.). The season at Challes is from the 1st of May to the 15th of October."

According to Professor Gubler, "Challes, the most mineralised of the sulphurous springs, is twenty times richer in sulphide of sodium, than waters highly favoured in this particular."

I append the latest analysis of the Waters of Challes made by the distinguished chemist, Dr Corrigou.

## ANALYSIS OF THE WATER OF CHALLES

In 1000 grains of water—

Soufre (représentant l'acide sulfhydrique libre)	gr.	0.0140	} Soufre total dosé par la balance à l'état de sulfate de plomb = 0 gr. 1972.
„ représentant l'acide sulfhydrique combiné à l'état de sulfhydrate de soufre		0.0465	
„ à l'état de monosulfures		0.1128	
„ probablement à l'état de polysulfure		0.0189	
„ à l'état d'hyposulfite		0.0050	
Acide sulfurique		0.0390	
„ silicique		0.0092	
„ carbonique libre ou à l'état de bicarbonate		0.1162	
„ carbonique fixe		?	
„ phosphorique		0.00057	
„ nitrique		0.0011	
Chlore		0.0870	
Brome		0.0016	

Iode . . . . .	0·0089
Soude . . . . .	0·4749
Potasse . . . . .	0·0057
Ammoniaque . . . . .	0·0022
Chaux . . . . .	0·0856
Magnésie . . . . .	0·0021
Alumine . . . . .	0·00022
Fer . . . . .	0·00039
Manganèse . . . . .	traces nettes.
Cobalt . . . . .	traces à peine sensibles.
Cuivre . . . . .	traces très-nettes.
Plomb . . . . .	id.
Antimoine . . . . .	traces ?
Arsenic . . . . .	0·000007
Matière organique dialysée . . . . .	abondante.
„ „ non dialysée . . . . .	assez abondante.
<hr/>	
Total . . . . .	1·023887

According to Dr Carrigou, this remarkable quantity of sulphur, authenticated by analysis, is of equal value, in combining the elements together, to gr. 0·4788 of mono-sulphite of sodium for every 1000 grains: Baréges only contains gr. 0·040, Cautercts gr. 0·019, and Luchon gr. 0·071.

We have seen that these Waters are employed at Aix chiefly when it is found necessary to unite the external sulphurous thermal treatment with the internal cure.

Dr Casalis, Inspector of the Waters at Challes,

has written a very instructive pamphlet on their therapeutic properties. We beg to refer the reader to it.

### 3. ST. SIMON

The Waters of St Simon, situate about three quarters of a mile from Aix, are limpid, inodorous, and colourless; the reaction is alkaline, and the temperature from  $19\cdot8^{\circ}$  to  $24^{\circ}$  C. ( $67^{\circ}$  to  $75^{\circ}$  Fahr.). According to M. de Kramer, they contain :

In 1000 grains of water—

Carbonate of lime . . .	0·23521 grs.
„ of magnesia . . .	0·16162 „
Chloride of magnesium . . .	0·00029 „
Sulphate of magnesia . . .	0·01124 „
„ of potash . . .	0·00391 „
„ of soda . . .	0·00889 „
Silicic acid . . .	0·00825 „
Alum, iron . . .	0·00172 „
Organic matter . . .	0·02062 „
Loss . . .	0·002626 „
<hr/>	
Total . . .	0·469216 „

M. Petrequin has discovered some traces of iodine. These waters are much used as a table beverage. They are very well tolerated by the stomachs of



nervous and delicate persons, and are useful in gastralgia, vesical catarrh, and in gravel and gouty complications.

#### 4. CHALYBEATE SPRING

A highly ferruginous spring has been recently discovered near the Establishment of Aix, on the property of Dr Davat. It furnishes an abundant supply, and is a welcome and useful auxiliary to the sulphurous waters of Aix-les-Bains and Marlioz.

## PRACTICAL INSTRUCTIONS

The journey from Paris to Aix is by Maçon, Bourg, and Culoz. Aix is a station on the Paris Railway to Turin. It is fourteen hours' distant from Paris, and four hours from Geneva and Lyons. This latter city is besides connected with Aix by a regular steamboat service by lake and by the river Rhone. There are two direct trains from Paris to Aix; the night express which leaves Paris at 8 p.m. and reaches Aix at 10 a.m.; and another express at 11 a.m., which arrives at Aix at 2 a.m. For this latter train carriages must be ordered from the hotels to meet travellers at the station at two o'clock in the morning.

The Waters of Aix were celebrated in the time of the Roman Republic. They were successively called *Aquæ Allobrogum* and *Aquæ Domitianæ*, from the name of Domitian, the proconsul of Julius Cæsar, who was the first to construct baths of any magnitude at Aix. At a later date they took the name of *Aquæ Gratianæ*, doubtless to perpetuate the remembrance of the benefits which the Roman Emperor Gratian bestowed upon the town.

The remains of monuments of this ancient period discovered at Aix, testify to the high repute in which these Waters were held in the estimation of the Masters of the Old World. But this reputation was afterwards obscured for several centuries, enveloped as it were, in the cataclysm of the ruin of the Roman Empire, and the invasion of the barbarians into Gaul.

The restoration of the hot baths at Aix was begun by a king of Sardinia, Victor Amédeus III, who, together with his Court, sojourned at Aix, in 1784. This prince built, for that age, a very remarkable medical establishment, which, further enlarged during the reign of Charles Albert, may be regarded as the nucleus of the present magnificent edifice, the admiration of all visitors.

The progressive increase in the number of bathers rendered necessary a proportional development of the balneatory appliances. The local authorities did all in their power to raise the pecuniary resources required. New and important buildings were undertaken with the concurrence of the whole province of Savoy, but the enlargement of the baths at Aix was only carried out upon a rather extended scale by a caterer for public amusements, who leased the Assembly Rooms and the

Thermal Establishment. And this lease, having been discontinued in 1855, before the completion of all the buildings, the French Government undertook to finish them after the reunion of Savoy with France. More than two million francs have since been spent to place the establishment in its present state, and to erect a Hospital for poor bathers. The springs, the buildings, the park which is adjacent to them, all are now the property of the State.

The town of Aix is most picturesquely situated on the lower slopes of the hills which form the base of the mountain of Revard. Meadows, fields interspersed with vines, and gardens where the fig, the almond, the pomegranate even, flourish luxuriantly, stretch between the dwellings set apart for bathers and the poetic lake of Bourget. Nature has here created a most lovely and fertile valley, closed in and protected from northerly winds by the vast spurs of the Alps and by a nearer range of lofty wooded hills.

The settled population of the town is about five thousand inhabitants. Its altitude above the level of the sea is about 850 feet, The mean temperature, during the favorable season for residence, is 70° Fahr. Atmospheric variations are at this time

hardly perceptible. The Thermal Establishment is open the whole year round, and thanks to the mildness of the climate, the Waters can be used at any time of the year; but, as a rule, invalids only reside at Aix from the 1st of May to the 1st of November, and that is the most favorable season to follow out a thorough treatment. The months of May, June, and September, should be selected by persons who fear the intense heat of the summer.

Happy in its topographical conditions, the valley of Aix enjoys a most salubrious climate. No epidemic has ever visited it.

Daquin, who wrote in 1773, tells us on this subject that, "when the plague was raging at Chambéry in the year 1564, the Senate and the Parliament of the Duke of Savoy left that town at the beginning of November to hold their sittings at Aix, where, on account of the salubrity of the air, they resided until the end of the month."

Cholera has never exercised its destructive influence here, and in 1871, whilst the smallpox cruelly ravaged certain parts of France and Switzerland, as well as neighbouring states, Aix was completely protected from this scourge.

*Curiosities and Antiquities*

The Roman Catholic Church is remarkable for its simplicity. The choir dates from the thirteenth century; it is in the purest Gothic style. This church, the only one which the town of Aix possesses, is altogether insufficient for the wants of Divine Worship. A subscription list is open in the vestry for its reconstruction.

There is also a Chapel for Anglican worship, where the English service is held at 11.30 a.m. and 3.30 p.m. The Chaplain is supplied by the Colonial and Continental Church Society.

In a new building erected at the entrance to the park is a Chapel for Presbyterian worship.

The Hospital is built behind the Thermal Establishment. Queen Hortense, the mother of Napoleon III, furnished the first funds for its construction in 1813. Since then numerous acts of generosity have permitted its enlargement and improvement. It is set apart for poor bathers, who have the free use of the establishment if they are provided with a certificate of distress.

The Château of the Marquis of Aix is a well-preserved edifice of the fourteenth century, and especially celebrated for its beautiful staircase. It

possesses a museum, originated by the Vicomte Le Pic, containing some interesting objects, which we will briefly mention :—Lacustrous collections of the Lake of Bourget and other places ; prehistoric collections principally from the caverns of Savigny, near La Biolle ; Roman and Gallic collections, with coins, pottery, &c. ; pictures, engravings, drawings, &c. ; China, earthenware ; a beautiful, very rare collection of old Italian dolls ; specimens of mineralogy, &c. The Library, in course of formation, the Bureau de la Mairie, the “ Justice de Paix,” the Police, the Special Commissariat, the Post Office, are all in the same building.

### *The Assembly Rooms*

The Assembly Rooms at Aix are some of the most beautiful and best suited for the purpose to be met with in France, and, like the Thermal Establishment, are the production of the architect Pellegrini. They are the central point of meeting for strangers. Three times a week—Tuesday, Thursday, and Sunday—there is a ball. For the balls held on Thursday evening dress is necessary. The élite of Chambéry faithfully patronise these soirées dansantes. An excellent Italian orchestra performs the other

evenings: this company includes some first-rate solo players. Once a week there is a special concert, or artistic representation. Independently of the interior amusements, the grand season, or rather the summer warmth initiates Venetian fêtes in the gardens attached to the Assembly Rooms. The laying out of this "spacious salon de verdure" has been carried out to facilitate the organisation of those brilliant nights *à giorno* to which the bands of the garrison at Chambéry furnish their co-operation. A display of fireworks generally terminates these fêtes about ten o'clock. The ball in the saloons is continued to a late hour of the night.

The Assembly Rooms are open from the 1st of May to the 1st of November. Shareholders and subscribers only are admitted. The subscription begins after the introduction by a shareholder, or by two well-known subscribers; exception is made only in favour of guests, who are required on entering to present their letter of invitation. Ordinarily, the physician, or a friend who is a subscriber, makes the presentation.

In the Lecture Hall of the Assembly Rooms will be found the principal French and English Newspapers, and the most important Periodicals.

Above the Place des Bains rises a Roman Arch in



perfect preservation. It was erected by Lucius Pompeius Campanus, in honour of the family of Pompey, about the fourth century. A number of inscriptions in Latin can be deciphered upon it. There are further, at Aix, some remains of Roman Baths to be seen at the Pension Chabert.

### *Thermal Grottos*

“An interesting underground gallery, leading to the caverns whence the Alum water rises, was widened in 1855, and may be visited at any time on procuring tickets (price fifty cents. each, at the office of the Establishment); and once a week, during the season, it is illuminated, *à giorno*, from two to four o'clock of the afternoon. The caverns on these days may be seen by strangers at a charge of one franc each.

“There are two distinct stories adorned with massive projections of admirable lightness, and with graceful cupolas produced from the limestone, from which the thermal water issues by the corrosive action of sulphurous vapours.” (Dr C. Despine, *op. cit.*).

## EXCURSIONS

Open-air exercise is an important adjuvant to the cure at Aix. The environs are so picturesque, the panoramas so varied, that it would be possible to fill a volume regarding them. I will only point out briefly the principal excursions to be made on foot, by carriage, by steamboat, and by railway. Persons desirous of a complete guide to the excursions about Aix should purchase Dr Forestier's book entitled, 'Des Promenades d'Aix-les-Bains, ou Vade Mccum,' new edition; or the smaller guide by Charles Besançon.

*Excursions on Foot*

I will commence with those the nearest :

1. From Aix to the Park of Marlioz, distance one mile by way of Chambéry. The return may be made by the rocks which overhang Marlioz. This doubles the distance.

2. From Aix to Chantemerle by the Boulevards des Côtes, distance one mile. Request to see the Villa Perret, from whence the view is very fine. The proprietor of the house is an excellent photographer, a pupil of Nadar.

3. The Bois Lamartine, and the Maison du Diable. The latter is so called on account of the dark colour of its walls, and the legends attached to the building. The devil is to-day succeeded by an English gentleman, whose hospitality is proverbial amongst his countrymen. To reach it, we must follow the road which leads to the "Petit Port," as far as the first bridge of stone, turn to the right, and then take the first road to the left, which leads up the hill. Opposite the farm, at some paces from the fountain, whose water is very soft and refreshing, you keep to the right and reach a small esplanade, from whence a pretty view is obtained. If you return to Aix by the same route, the promenade occupies about an hour. Otherwise, if you wish to visit the site where the most affectionate of poets—Lamartine, wrote his charming versification 'Le Lac,' follow along the road which ascends to the summit of the hill. "You will find," says Dr Forestier, "on the side of the lake, a path leading towards a cottage; keeping to the left, it conducts by a gentle ascent to the edge of a precipice; this is the "Saut de la Pucelle." Proceed a few steps further in the same direction, and you will be able to sit, like Lamartine, under those three trees henceforth consecrated to the worship of poetry. Then

peruse again those lovely verses of the poet, of which I will only quote a few stanzas :

“ Ainsi toujours poussés vers de nouveaux rivages,  
 Dans la nuit éternelle emportés sans retour  
 Ne pourrons-nous jamais, sur l’océan des âges,  
 Jeter l’ancre un seul jour.

“ O lac ! rochers muets, grottes, forêt obscure,  
 Vous que le temps épargne, ou qu’il peut rajeunir,  
 Gardez de cette nuit, gardez belle Nature  
 Au moins le souvenir !”

You may retrace your steps by the same way as you came, or better, follow the hill to the right and you will reach the pretty little church of Tresserve. A few paces before coming to it, the road turns abruptly to the left, and leads to Aix in half an hour.

4. *The hill of Tresserve.*—Take the first road to the right at the end of the town, as in going to Marlioz. The little church is reached in half an hour. You can follow the hill to the left, in passing through the village, to a cross where the road divides into two portions ; the one to the left descends towards Marlioz—the shorter ; the other, to the right, will be described further on (*Promenade en Voiture d’Aix à Terrenue*). This promenade would occupy two hours and a half.

5. *The Grand Port.*—Cross to the left the Pro-

menade du Gigat, planted with horse-chestnut trees, at the northern extremity of the town. Follow the pretty road bordered by plane trees. The lake is reached in three quarters of an hour. The steam-boats depart from the Grand Port.

6. *The Petit Port*.—Pass under the Maison du Diable, and leave it on the left. After having crossed the village of Cornin there is a bridge, and to the right a road which runs along a watercourse to the lake.

7. *St Simon*.—Route de Genève at the north of the city. The spring of St Simon is reached in twenty minutes' walking. It is to the left of the route. This water is extolled in gout, certain affections of the stomach, of the kidneys, and of the bladder.

### *Excursions on Foot, or on Donkey*

1. *The village of Trévignin*.—A beautiful shaded road with pretty views. Ask to see the monster chestnut tree measuring thirty-six feet in circumference. The time occupied in going and returning is about two hours.

2. *Monxy, Clarafond*, and return by *Drumettaz* (the same distance).

3. *La Dent du Chat*.—A mountain about 5000 feet high. A guide is necessary. Terms should be made before starting for the journey. The usual charge is twelve francs. A carriage or a boat is taken first as far as Bourget, thence the summit of the mountain is reached in three hours by a very gentle ascent. The view obtained embraces Mont Blanc, the valley of Chambéry and that of the Rhone as far as Lyons.

4. *Le Grand Revard*.—Altitude 5070 feet. A guide is also necessary for this excursion, which is an easy one as the Grand Revard Society has constructed an excellent mule path by which the summit of the mountain can be attained on foot or by donkey in three hours by way of Pertuiset. Another hour is required to reach the Châlet, and then half an hour to arrive at the highest point (Grand Revard).

This mountain is not abrupt and steep as the preceding. Its sides are covered with magnificent forests of pines, rich pastures, châteaux with numerous cows, and several springs of delicious water. The air is very balmy and bracing. We hope to see a comfortable hotel shortly built here for bathers desirous of resting from the summer heat and the fatigues of treatment.

5. *La Dent du Nivolet* (5070 feet). Two hours are occupied in going in a carriage from Chambéry to the village of Les Déserts; another two hours in reaching, on foot, the Dent. The return to Aix can be made in a carriage by the valley of Beanges, the defile of Plain-Palais, Noyer, Lescheraine, Cusy, and Grésy in five hours, or, on foot, in four hours, by proceeding along the summit of the mountain to Pertuiset (see Grand Revard). Upon the Dent du Nivolet rises a cross, sixty feet high, erected by the Comte de Fernex. From Nivolet, the view extends along the valley of Graisivandau and Chambéry, and a great part of the Alps. For these three mountain excursions it is expedient to carry some provisions, for nothing can be procured *en route*.

6. *The Lemnoz* (5600 feet). In four hours by carriage we reach Leschaux, thence in two hours, on foot or on mule, we arrive at the Hotel Châtel.

From the summit of this mountain there is a magnificent view of Mont Blanc, and the vast chain of the Alps, and the three lakes of Geneva, Annecy, and Bourget. Near the top is a comfortable hotel chalet, where one can remain a few days. The air is pure and balmy. Visitors would flock thither if there was a good mule path from Leschaux to Lemnoz.

*Excursions in Carriages*

1. From Aix to St Innocent, and to Brison. At St Innocent stop and see the celebrated Angora rabbits, whose hair assists in the weaving of a host of articles for the rheumatic—gloves, gaiters, chest preservers, &c. From St Innocent to Brison occupies three quarters of an hour along the side of the lake. The whole journey is performed in two hours and a half. The route being exposed to the sun, it is pleasanter to take this promenade on a cloudy day, or after sunset.

2. Tresserve. Terrenue. Return by the lake and the château “Bon Port.” During the residence of Sir Dominie Corrigan at Aix, I had this promenade pointed out to him. He has thus described it:

“I will not enact the part of a tourist’s guide, but there is one drive, of about two hours, so beautiful, that I cannot omit to notice it here for its lights and shades, its scenery of rock and vines, its chestnut woods, and its water. I have to thank Dr Bertier for it. On a card he wrote the following directions:—‘Aller à Tresserve en voiture, traverser le village, et revenir par le lac en passant par Terrenue.’”



We ascended the village by zigzag roads, bordered with acacias and vines. On our left was spread out far below us, the valley with its cultivated fields, its vines and its tall poplars; beyond lay cliffs of chalk-rock, contrasting in their horizontal white abruptness with the verdure below, and when we rose to our high level, the beautiful lake below on our right scarcely rippled on its surface, and on its opposite side, the towering rocky border rising, not too abruptly, covered with shrubs and verdure to the top, varied by stripes of bare rock. Our road, as we descended beyond the village, lay in similar zigzag roads to those by which we had ascended, bordered by magnificent old chestnut trees in full verdure and full fruit. Arrived at the turn homewards, we reached the far end of the lake, and our route lay along a level causeway, built in the water of the lake but near its border; on each side of us, as we drove along for some miles, shoals of small fish darted here and there among the stems of the typha and the water-lillies—yellow, blue, and white—with their floating leaves and lovely flowers, while above them fluttered myriads of beautiful painted butterflies, or, skimmed along like hawks, the gauze-winged dragon flies.”

3. From Aix to St Girod by Grésy, Château de

Loche, returning by Albens. A distance occupying three hours. Arrange for all charges before starting.

4. From Aix to Mery by Mouxy and Clarafond, returning by Viviers and Marlioz. Time nearly two hours.

5. From Aix to the Waterfall at Grésy, and to the mill of Primoz. The Waterfall is a very interesting one. Its celebrity is connected with the death of Baroness de Broc, who was drowned in it before the eyes of her friend Queen Hortense, the mother of Napoleon III. The route which leads to the mill of Primoz is very picturesque. Time nearly two hours and a half.

6. From Aix to Bourget. There is an excellent restaurant at the Hotel Ginot upon the lake. The chef de cuisine was attached to the establishment of the unhappy Emperor Maximilian. From Bourget a fine road traverses the mountain by the "Col du Chat," which is reached in an hour and a half. The view is splendid, and increases in proportion as we advance.

In the village of Bourget is an old church which dates to the thirteenth century. Regarding the Church of the Old Priory, and the other Antiquities of Bourget, consult the interesting book of M.

Mailland, 'Bordeau et son Château Féodal.' This drive occupies two hours and a half.

7. From Aix to the Grand Chartreuse. This occupies six or seven hours. To prevent fatigue the excursion should extend to two days. Accommodation for the night can be obtained at the Convent, or at St Laurent du Pont. Ladies are not admitted into the interior of the Convent; they are lodged in an adjacent establishment conducted by Sisters. This rule goes back to the customs of Dom Guignes, forty-four years after the death of St Bruno, the founder of the Order. "Nous ne permettons jamais aux femmes d'entrer dans notre enceinte; ni le sage, ni le prophète, ni le juge, ni l'hôte de Dieu, ni les enfants, ni même le premier modèle sorti de ses mains, n'ont pu échapper aux caresses et aux tromperies des femmes. Qu'on se rappelle Solomon, David, Samson, Loth, et Adam lui-même."

In the environs, visit the Chapel of St Bruno and Notre Dâme de Cosalibus in the middle of the wood of firs, about half an hour from the Monastery. From the Convent to the Grand Som (height 6500 feet) requires three hours.

8. *The Châtelard.*—*The valley of Bauges.* It takes four hours to go to Châtelard, and a further

four hours from Châtelard to St Pierre. From the latter town the return to Aix can be accomplished in an hour by railway.

“ Beyond the village of Grésy, the road gradually ascends along the Sierroz stream, where (three hours from Aix) stands the village of Cusy, with the ruins of an ancient castle; there the road makes a sharp turn to the south east ascending along the left bank of the Cheran.

“ Three singular peaks, or rather obelisks of rock, rise abruptly from the valley. One hour from Cusy, the Cheran is crossed by a very ancient bridge, Pont de Bauge. Not far from the bridge is the entrance to the Grotte de Bauge, or cavern which contains a subterranean lake, 216 feet below the level of the entrance, and approached by a gallery about 270 yards in length. The road crosses the torrent near the village of Lescheraines, and in less than one hour from the Pont de Bauge, reaches Châtelard, a little town 2500 feet above the sea. A very fine view of the valley and the surrounding mountains is obtained from the ancient castle which belonged to the author's father.

“ The road descends from Châtelard to St Pierre d'Albigny, turns aside from the valley of the Cheran at the pretty village of Ecole, where there is a good

Café and an Inn, and in one hour from Châtelard passes St Reine, the highest village.

“An ascent of threc quarters of an hour leads to Col du Frêne, which commands a very fine view of the valley of the Tsère and the ranges beyond it; the road descends in long zigzags, but a pedestrian may avoid these, and so reach in one hour St Pierre d’Albigny”—(Baron Despine, op. cit.)

### *Excursions by Steamer or small Boats*

A regular steamboat service plies every day round the lake. It stops an hour and a half at the Abbey of Haute-Combe.

Omnibusses start from La Place Centrale at half-past twelve and return at half-past four o’clock. Small boats can be hired for fishing and the different excursions of Bordeau le Bourget &c., either from the Grand or Petit Port. (See Tariff.)

“The favourite excursion is to Haute-Combe, on the opposite or north-west shore of the Lac du Bourget. The Monastery, beautifully situated by the side of the lake, and at the foot of the Mont du Chat, was founded in 1125. The gothic Chapels were the burial places of the Princes of Savoy.

Among them is an Archbishop of Canterbury, son of Count Thomas of Savoy, who died in 1270. The building was pillaged and desecrated at the French Revolution; the coffins were opened and rifled, and the monuments, paintings, and stained glass, broken and effaced. It was restored (1824) by Charles Felix, King of Sardinia, as nearly as possible to its original condition; the tombs were renovated, the walls painted afresh, and the windows replenished with Bohemian glass. About half a mile behind the Abbey is an intermittent spring, called ‘Fontaine des Merveilles’ (Baron Despine, *loc. cit.*)

It is surrounded by venerable chestnut trees. The site is a happy one and well chosen for promenades. At the northern extremity of the lake, is the Château de Chatillon, and vis-a-vis to the Grand Port, with its back to the mountain, the Château Féodal de Bordeaux, which faces a third château, that of Bon Port, the property of an English gentleman, Joseph Charlton Parr de Warrington Esq.

### *Excursions by Railway*

1. *Excursion to Annecy, and the “Gorges du Fier,”* which are “near the picturesque feudal castle of

Montrotier, 33 kilomètres\* from Aix (an hour and a quarter by rail), 7 kilomètres from Annecy, and 500 mètres† from the station of Lovagny.

“ As remarkable as that of Trient (Switzerland), this gorge is due to the corrosion of the calcareous rocks, 300 feet in height, between which the river Fier has hollowed out its bed. These rocks, singularly contorted, are covered with trees and climbing plants which hang in graceful festoons over the abyss.

“ The length of the defile is 250 mètres. Its breadth from 40 to 10 mètres, and it has been rendered accessible by a gallery constructed by means of voluntary subscriptions in 1869.

“ This gallery consists of an aërial footway, the wooden flooring of which is supported by 54 brackets of iron, with railings of the same metal. The water occasionally rises 26 mètres in six hours.

“ Excellent restaurants will be found either at the railway station, or at the entrance of the gallery.

“ Leave Aix at 8.20 a.m., arrive at Annecy at 10 a.m. Breakfast there at the Hotel Verdun. At 11 make the tour of the picturesque lake of Annecy on board the steamer, and on returning, stop at

\* A kilomètre = 1093 yds., 1 ft., 10 inches.

† A mètre = 1 „ 0 „ 3·37 „

Lovagny to see the gorge, taking up the train thence, which returns to Aix in time for dinner at 6 p.m.

“The Public Museum in the Town Hall at Annecy will also be found very interesting from its collection of remains of lacustrine habitations, from bones from our mountain caverns, its epigraphic collection, and the well-arranged collections of the birds and minerals of the country.” (Baron Despine, *op. cit.*)

2. From Aix to Chambéry takes twenty minutes. There are six trains a day. The Hotels are very good, Hotel de France, Hotel de la Métropole, &c. The drive to the Eaux des Challes occupies two hours, a visit to the house of Jean Jacques Rousseau, aux Charmettes, an hour. In the city we find the Château with its old chapel, the Préfecture, the Fountain of Elephants erected in honour of General de Boigne, who after having made a large fortune in the Indies, loaded the city of Chambéry with benefits—the Palais de Justice, &c.



*Booksellers, Stationers*

Mr Henry Bolliet, Place Centrale.

Mr Gaspard Bolliet, Rue de Chambéry.

*Select Library*

At the clergyman's house adjoining the church.

*Depôt de Gaze de Chambéry, Tissus de poils de Lapins  
Angoras de St Innocent, Prix de Fabrique*

Mr N. Domenget, Place Centrale.

*Gun and Pistol Gallery*

Collombert, Rue de Genève.

*Bankers*

Messrs Antonioz and Fôret.

The Credit Lyonnais.

The Caisse Commerciale.



## GENERAL TARIFF

*Assembly Rooms*

## PRICE OF SUBSCRIPTION

One person . . . . .	25 francs.
A married couple . . . . .	45 „
A family of three persons . . . . .	55 „
A family of more than three persons . . . . .	65 „
Admission for one day . . . . .	3 „

Children of subscribers under eight years of age are admitted free.

The above is the subscription for the whole season. The tariff is slightly lowered in May and September, when half subscriptions are generally issued. It does not vary during the other months of the season.

*Public Carriages*

The Scale of Charges for hiring carriages is fixed as follows :

“Course” in the town—

For one or two persons . . . . .	1 franc.
For two or four persons . . . . .	2 francs.

“Course” out of the town—

By the hour without reference to the number of persons.

Carriage with one horse . . . . .	3 francs.
„ „ two horses . . . . .	4 „

*Fares*

1. From Aix to St Innocent and Brison, and back :

A carriage with one horse . . . . .	9 francs.
A carriage with two horses . . . . .	12 „

2. The tour of the lake by Tresserve, Terrenue, and Bon Port, or by Marlioz, Viviers, and Bon Port :

A carriage with one horse . . . . .	8 francs.
A carriage with two horses . . . . .	11 „

3. From Aix to Mery by Mouxy, Claraford, Viviers, and Marlioz :

A carriage with one horse . . . 9 francs.

A carriage with two horses . . . 11 „

4. From Aix to the mill of Primoz :

A carriage with one horse . . . 9 francs.

A carriage with two horses . . . 12 „

5. From Aix to Bourget :

A carriage with one horse . . . 11 francs.

A carriage with two horses . . . 15 „

### *Carriages Plying at the Railway Stations*

The price of places in these carriages is fixed as follows :

Each person . . . 75 cents.

Each package above twenty kilogrammes . 50 „

Packages under twenty kilogrammes are carried free of charge.

### *Donkeys*

The Scale of Fares for donkeys is fixed as follows :

1. For an hour (each hour the same) . . . 1 franc.

2. For half a day . . . 4 francs.

3. For a day . . . 7 „

### *Boating*

The Tariff for boats, with two boatmen, carrying six passengers, is :

For Haute-Combe . . . 8 francs.

„ Bordeaux . . . 3 „

„ Le Bourget . . . 8 „

„ Brison, St Innocent . . . 5 „

„ Bon Port . . . 3 „

„ Châtillon and Savières . . . 13 „

The Fares for excursions to other parts of the lake are charged for by the hour.

For boats for two rowers:

The first hour . . . . .	3 francs.
The second hour . . . . .	2 fr. 50 c.
Each hour after . . . . .	2 francs.

### *Tariff of the Bathing Establishment*

A bath . . . . .	1 fr. 50 cent.
The douche with two doucheurs, from . . . . .	2 fr. to 2 fr. 50 c.
„ . . . . .	1 fr. 50 c.
Inhalations and pulverisations . . . . .	1 fr.
Porters . . . . .	60 cents.
Double ticket . . . . .	1 fr.

The charge for attendance is not included in the above-mentioned tariff.



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## Date Due

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